The Economic Impact of Depression Treatment in India

Manuela Angelucci*
Daniel Bennett†

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Abstract

This study evaluates the impact of depression treatment on economic behavior in Karnataka, India. We cross-randomized pharmacotherapy and livelihoods assistance among 1000 depressed adults and evaluated impacts on depression severity, socioeconomic outcomes, and several potential pathways over 26 months. The pharmacotherapy treatments reduce depression severity, with benefits that persist after treatment concludes. They substantially increase child human capital investment, particularly for older children, and reduce risk intolerance and the incidence of negative shocks. These findings suggest two pathways through which depression may perpetuate poverty.

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*Department of Economics, University of Texas at Austin, mangeluc@utexas.edu.

†bennettd@usc.edu, Center for Economic and Social Research and Department of Economics, University of Southern California

1 Introduction

Depression is a pervasive and costly illness with a lifetime prevalence of 15-20 percent (Moussavi et al. 2007, Ferrari et al. 2013, Hasin et al. 2018). Since depression is the fourth largest contributor to the global burden of disease and the third largest source of years lost to disability (James et al. 2018), treatment may lead to large gains.

Depression treatment may also improve socioeconomic outcomes, since its symptoms may reduce consumption and investment through multiple pathways. Depression may worsen socioeconomic outcomes through a "productivity" pathway: fatigue, disrupted sleep, and impaired cognition may reduce labor supply and productivity, decreasing income. Depression may also cause a "paralysis of the will," which increases the cost of taking action (Beck and Alford 2009), as well as anhedonia and pessimism, which reduce the actual or perceived benefits of taking action. This "action" pathway may discourage people with depression from both investing and averting negative shocks. Other pathways are possible as well.

For developing countries, it is particularly important to understand the economic impact of depression and find effective and scalable treatments: depression is more prevalent among the poor and may contribute to poverty and poverty traps (Ridley et al. 2020, Kessler and Bromet 2013, Haushofer and Fehr 2014). Moreover, depression treatment is challenging because both demand and supply are constrained. Pharmacotherapy may be a cost-effective approach in settings with few mental health care providers (Saxena et al. 2007). However, we lack evidence of the feasibility and effectiveness of pharmacotherapy in developing countries.

This paper studies the effects of pharmacotherapy on depression, socioeconomic outcomes, and possible pathways that may link mental health and economic behavior. We implemented a community-based cluster cross-randomized trial offering Psychiatric Care (PC) and Livelihoods Assistance (LA) to 1000 adults (86 percent of whom are female) with symptoms of mild or moderate depression in a peri-urban region near Bangalore, India. The PC intervention provided eight months of personalized pharmacotherapy with the diagnosis and oversight of a psychiatrist from a local research hospital. In the LA intervention, a local NGO organized two group meetings to address work-related challenges and provided personalized follow-up support to help participants find employment, small loans, or other income-generating opportunities. 44 percent of participants complied with the PC intervention and 68 percent complied with the LA intervention. We assess impacts in four follow-up waves over 26 months.

Based on intent-to-treat estimates, we find that the combined PC/LA intervention reduces depression severity by 0.24 standard deviations (SD) and reduces the prevalence of depression by 57 percent while the PC intervention is ongoing. It reduces depression severity by 0.21 SD and reduces the prevalence of depression by 45 percent several months after PC concludes. These effect sizes align with existing estimates of the impact of mental health care in South Asia (Patel and Kleinman 2003, Patel et al. 2017, Rahman et al. 2008). The impact on depression of PC alone is more modest, while LA alone does not significantly reduce depression. Neither intervention significantly improves work time or earnings.

We then estimate impacts on child human capital investment, household wealth, consumption, and sanitation/hygiene. We focus on the pooled effect of any PC intervention (PC or PC/LA), since LA has small and insignificant effects on its own. We find a large and significant impact on child human capital investment, which increases by 0.26 SD due to gains in enrollment and declines in child labor. This impact is 0.46 SD for children who are 14 or older. We also find a small and temporary increase in wealth, but no other aggregate effects on the other families of outcomes.

To investigate possible pathways for this result, we estimate impacts on prevention behavior and risk intolerance (e.g. willingness to avoid or undertake risky actions), the incidence of negative shocks, cognitive performance, participation in household decisions, and subjective wellbeing. We find that depression treatment increases prevention behavior and risk intolerance and reduces the incidence of negative shocks after the PC intervention concludes. We also find a statistically significant negative effect on cognitive performance after the PC intervention and no statistically significant effects on subjective wellbeing or participation in household decisions. In sum, depression treatment appears to lead to both higher investment and lower incidence of negative shocks, consistent with the "action" pathway. Conversely, treatment does not appear to improve socioeconomic outcomes through a "productivity" pathway.

These findings contribute to the literature that examines the impact of depression on economic behavior and suggest two channels through which depression may worsen socioeconomic outcomes: by reducing child human capital investment, depression may reduce the future consumption and wellbeing of children; by reducing prevention behavior, it may increase the frequency of negative shocks and prevent wealth accumulation. Our findings are consistent with an intergenerational depression poverty trap and contribute to our understanding of the psychology of poverty (Mani et al. 2013, Mullainathan and Shafir 2013, Haushofer and Shapiro 2016). They complement studies that relate economic circumstances early in life to mental health in adulthood (e.g. Persson and Rossin-Slater 2018, Adhvaryu et al. 2019).

We also contribute to the understanding of how to improve investment in child human capital: we find a strong link between treating adult depression and investment in children (Baranov et al. 2020). Our effect sizes are large: they are similar to the impact on enrollment of *Oportunidades*, Mexico's conditional cash transfer program (Angelucci et al. 2010), as well as to the average effect on enrollment of other conditional and unconditional cash transfer programs (Baird et al. 2014). They also fall within the 80-90th percentile of impacts on education access among educational interventions in developing countries (Evans and Yuan 2020).

We also make two policy contributions. We show that a community-based pharmacotherapy intervention can be effective in a developing country setting. Therefore, treatment with SSRIs may be a feasible short-term tool to address endemic depression in a setting with scarce mental health care resources. Secondly, we find a cost-effective, positive complementarity between PC and LA. Although LA is not a form of psychotherapy, this result is consistent with the finding that combining pharmacotherapy and additional treatments such as psychotherapy may be cost-effective (Wiles et al. 2016). We suggest further study of joint pharmacotherapy and light-touch psychosocial interventions.

2 Depression and Economic Behavior

Unhappiness and anhedonia are two core symptoms of depression. Anhedonia reduces the pleasure and anticipation from enjoyable activities and accomplishments (Rizvi et al. 2016). Other common symptoms include difficulty concentrating, indecisiveness, low self-esteem, fatigue, pessimism, changes in appetite, disrupted sleep, and, in extreme cases, suicidal ideation (Löwe et al. 2008).

Depression may affect consumption, investment, and other economic outcomes through multiple pathways. Labor supply and productivity are well-known channels that link depression to economic outcomes. Fatigue, disrupted sleep and nutrition, and impaired cognition may reduce labor supply and productivity, lowering income and consumption. In Figure 1, Panel (a) illustrates this "productivity" pathway by showing a leftward shift in consumption from c_{nd} (consumption when not depressed) to c_d (consumption when depressed).

In addition, there may be an "action" pathway: several depression symptoms may prevent people from taking beneficial actions. These symptoms share the feature that they simultaneously lead to lower investment and greater exposure to negative shocks. First, indecisiveness, low self-esteem, and difficulty concentrating may lead to a "paralysis of will" that increases the fixed cost of taking action (Beck and Alford 2009). Panel (b) of Figure 1 considers an action with fixed cost, I, that increases consumption from c_0 to c_1 (translating into a utility gain of Δu). A person takes action if $\Delta u > I$, so that the increase in utility exceeds the cost. By increasing I, depression may lead people to forgo actions that are otherwise beneficial. Second, the limited ability to derive pleasure from enjoyable activities implies a lower and flatter utility function. In Panel (c), depression flattens the utility function from $u_{nd}(c)$ to $u_d(c)$, which reduces Δu. For a given I, someone with depression may benefit less from moving from c_0 to c_1, which may also lead to inaction. Finally, pessimism may lead someone with depression to underestimate the benefit of an action, reducing the *perceived* utility gain from acting.[1] In Panel (d), while $u_d(c_0) = u_{nd}(c_0)$, pessimism lowers the slope of $u_d(c)$ so that someone with depression perceives less utility from moving from c_0 to c_1.

In addition to limiting productive investments, the mechanisms in Panels (b)-(d) may prevent depressed people from safeguarding themselves against shocks that reduce consumption below c_0. This may occur if depression increases the psychic cost of taking precautions or reduces the actual or perceived benefits of prevention.[2] Therefore, depression may increase

[1]Similarly, De Quidt and Haushofer (2016) characterize depression as reducing the expected return to effort.

[2]Strulik (2019) calibrates a model in which depressed people adopt fewer preventative actions and invest

poverty through lower investment and higher incidence of negative shocks.

Depression may also affect economic behavior through other pathways, such as risk and time preferences or changes in decision making. These effects may in turn change consumption or investment. Finally, the presence of a depressed family member increases depression risk throughout the household, including across generations, potentially magnifying the economic ramifications of depression.

Evidence of the effects of depression on economic behavior is limited and mainly observational. Depression is correlated with low productivity, absenteeism, low human capital investment, and changes in risk attitudes (e.g. Berndt et al. 1998, Fletcher 2013, Schwebel and Brezausek 2008, Bayer et al. 2019, Cobb-Clark et al. 2020). Pharmacotherapy is associated with improvements in life satisfaction, cognition, and decision-making among people with depression (Dzevlan et al. 2019, Prado et al. 2018). Quasi-experimental studies find an effect of mental health on labor market outcomes (Biasi et al. 2020), or suggest that mental health may mediate the economic impacts of external shocks (Baranov et al. 2015, Hanaoka et al. 2018). Among experiments, Patel et al. (2017) show that psychotherapy increases labor supply while Haushofer et al. (2020) find no impact on a variety of economic outcomes. Baranov et al. (2020) find long-run effects of treatment for perinatal depression on decision-making and child human capital investment.

Studies also document the link between emotions, poor sleep, and fatigue and economic behavior. For example, emotions may affect decision making in a variety of contexts (e.g. Ariely and Loewenstein 2006, Ifcher and Zarghamee 2011); adequate sleep increases productivity, wellbeing, and cognitive function (Bessone et al. 2020); happiness and fatigue are linked to work productivity (Oswald et al. 2015, Dickinson 1999); indecisiveness may contribute to status quo bias (Samuelson and Zeckhauser 1988, Sautua 2017). Depression has negative spillovers for the mental health of other family members, both contemporaneously and across generations (Marmorstein et al. 2004, Hansen and Buus 2013). Taken together, this evidence confirms that depression may affect economic behavior and outcomes through multiple pathways.

less in their health. According to the calibration, depression may shorten US life expectancy by four years.

3 Interventions

We conducted this study in a peri-urban region northwest of Bangalore, Karnataka. Our study area comprises 506 villages and wards (urban jurisdictions) with at least 40 households within the catchment area of our partner NGO in the Doddaballapur, Korategere, and Gauribidanur districts. To measure the prevalence and correlates of depression in this area, we concurrently surveyed a representative sample of adults in an adjacent non-study district. In this setting, 24 percent of adults have some depression symptoms and 10 percent have moderate or severe depression symptoms. Symptoms are more severe for women, older people, and people with low socioeconomic status, as studies document elsewhere (Gilman et al. 2002). We elaborate on these patterns in Appendix A.1.

We implemented two community-based interventions in collaboration with Grameena Abudaya Seva Samsthe (GASS), a local social service organization that has worked to provide health care and social support to people with physical and mental disabilities since 2001. We modified their existing programs, which facilitate mental health care for people with mental illnesses and provide livelihoods assistance.

The PC intervention provided eight months of free psychiatric care through the Shridevi Institute of Medical Sciences and Research Hospital. The initial visit included a diagnosis, an explanation of the significance of mental illness, and an individualized course of medical treatment. Patients returned for monthly follow-up visits. The most commonly prescribed anti-depressants were Selective Serotonin Reuptake Inhibitors (SSRIs). These drugs are generally not under patent and are available inexpensively in India. They are widely used and have relatively few well-tolerated side effects (Ferguson 2001, Cascade et al. 2009).[3]

[3] Unlike in a clinical trial, participants were aware of their participation in the PC intervention. A portion of the treatment effect on mental health may arise through a placebo effect. This non-blinded arrangement realistically characterizes depression treatment in practice. A meta-analysis by Arroll et al. (2005) shows that treatment with SSRIs is more effective than a placebo in primary care, where the characteristics of patients and the manifestations of depression often differ from inpatient psychiatric settings. A meta-analysis by De Maat et al. (2006) shows that pharmacotherapy and psychotherapy are similarly effective on average, and that pharmacotherapy is effective for treatment of both mild and moderate depression. Around 20 percent of patients who abruptly discontinue SSRIs experience antidepressant discontinuation syndrome. Symptoms such as dizziness, fatigue, nausea, and irritability may last for 1-2 weeks (Fava et al. 2015, Gabriel and Sharma 2017), although evidence regarding this phenomenon continues to evolve (Davies and Read 2019). Discontinuation symptoms are milder and occur less frequently for patients who receive shorter courses of treatment (Warner et al. 2006, Eveleigh et al. 2018). GASS organized all visits, transported participants to their appointments, and monitored patient welfare via home visits throughout the intervention.

Appendix A.2 discusses ethical considerations.

The LA intervention provided up to two group meetings and personalized livelihoods assistance. The meetings discussed ways to earn income and deal with on-the-job challenges. The personalized assistance aimed to help participants identify and pursue income-generating activities through job placement, small loans, or training, based on each participant's needs. This intervention took place in the first two months of the study. Jobs that participants received through the intervention could continue beyond the study period.

4 Design, Sampling, and Recruitment

We used a cluster-randomized design to cross-randomize psychiatric care (PC) and livelihoods assistance (LA) by village or ward (urban jurisdiction).[4] Before starting the recruitment, we stratified the randomization by district and terciles of a village socioeconomic index based on the 2011 Census of India, for a total of nine strata.[5] We then selected 1-2 participants per village. This design minimized spillovers and cross-arm contamination. Treating few people per village limited information leakages, protecting patient confidentiality in an environment where mental illness is stigmatized.

Our partner NGO had limited capacity for both the PC and LA interventions. To improve statistical power given this constraint, we allocated twice as many participants to the control arm as to each of the other intervention arms. We ultimately enrolled 395 participants (from 204 villages) in the control arm, 207 participants (from 99 villages) in the PC arm, 205 participants (from 102 villages) in the LA arm, and 195 participants (from 101 villages) in the PC/LA arm.

We began recruitment in December 2016. We sampled participants through a door-skip pattern in which the skips were proportional to village size. Once at the household, surveyors randomly chose an available adult to screen for eligibility. We screened people for depression symptoms with the PHQ-9 depression severity scale (Kroenke et al. 2001). This nine-item scale ranges from 0 to 27 and higher values indicate more severe symptoms.[6] To obtain a

[4] Hereafter we refer to villages and wards as "villages."

[5] Socioeconomic index components include village averages of house quality, electrification, latrine use, and durable good ownership.

[6] The PHQ-9 is widely validated to screen for depression and measure the response to treatment in India

sample of mildly or moderately depressed people, we recruited subjects with PHQ-9 scores of 9-20.[7] In total, surveyors screened 6446 people in order to enroll a study sample of 1000 participants across 506 villages.

We did not stratify by gender during recruitment, and participants are 86 percent female. This gender ratio is common in other depression studies (e.g. Patel et al. 2017) and reflects the higher prevalence of depression among women.

5 Data and Measurement

We surveyed respondents five times over 26 months. Round 1 took place at recruitment, before the start of the interventions. Round 2 occurred four months after recruitment, midway through the PC intervention and at the end of the LA intervention, and Round 3 occurred eight months after recruitment, around the end of the PC intervention. Round 4 occurred 16 months after recruitment and Round 5 occurred 26 months after recruitment. We refer to Rounds 2 and 3 as "during the PC intervention" and Round 4 and 5 as "after the PC intervention" in our analysis below. Figure A2 illustrates the study timeline.

This analysis follows the pre-analysis plan that we registered before collecting follow-up data. We study three categories of outcomes: (1) participants' depression severity, work hours, and earnings; (2) household socioeconomic outcomes; (3) and potential pathways. Unless otherwise specified, these outcomes are available in all rounds. We winsorize monetary values at 5 percent and convert to 2017 values using the Indian consumer price index.

We use the PHQ-9 to measure depression severity. While the PHQ-9 is not a diagnostic tool, scores of 5-9 roughly correspond to mild depression and scores of 10-20 roughly correspond to moderate or moderately-severe depression. We examine impacts on standardized PHQ-9 scores, as well as indicators for PHQ-9 scores below 5 and below 10. We measure

and throughout the world (e.g., Patel et al. 2008, Manea et al. 2012, Indu et al. 2018).

[7] We initially used a minimum PHQ-9 threshold of 7 before revising the threshold to 9 based on our success with recruitment. As a result, 8 percent of participants have baseline PHQ-9 scores of 7 or 8. Following our IRB protocol, we referred people with PHQ-9 scores of 21 or more (indicating severe depression) for immediate treatment and did not enroll them in the study. To select the people most likely to benefit from the livelihoods intervention, we did not recruit people who had disabilities that prevented them from working, who were currently earning more than Rs. 6000 per month, or whose child care duties required them to remain at home throughout the day. We also excluded pregnant women due the additional risks of pharmacotherapy during pregnancy.

work time – the time spent on productive activities – from a 24-hour time diary, which we convert into a weekly value. Productive activities include primary and secondary jobs, as well as child care, cooking, cleaning, doing laundry, and fetching water.[8] We measure weekly earnings from primary and secondary jobs.

Household socioeconomic outcomes include child human capital investment, hygiene/ sanitation, net liquid wealth, and consumption. We measure child human capital investment for all children within the household aged 5-18. Outcomes include current enrollment, days of attendance, hours of homework, and hours of paid work in the past week. We do not observe any child human capital outcomes in Round 5. Our primary analysis relies on household-round averages of these variables, although child-level estimates yield similar results. We measure hygiene and sanitation by observing whether there is open defecation or visible garbage at the respondent's home, whether the cooking area is clean, and whether the respondent has visibly dirty hands and fingernails. We define net liquid wealth as savings plus credit (the amount that others owe to the household) minus debt. Consumption is the total consumption of food in the past week (across 23 food groups that are common locally) and 13 non-durable non-food commodities (converted into weekly values from 1 or 2 month recalls) for everyone in the household.[9]

We measure several potential pathways for the socioeconomic impacts of depression treatment, including prevention behavior and risk intolerance, the incidence of negative shocks, participation in household decisions, cognitive performance, and subjective wellbeing. We elicit prevention behavior and risk intolerance through the Blais and Weber (2006) DOSPERT scale, a generalized risk self-assessment (Dohmen et al. 2011), and the Eckel and Grossman (2008) incentivized lottery game.[10] The DOSPERT and generalized risk instruments measure the willingness to take actions to prevent negative shocks and facilitate positive shocks. Prevention behavior is linked to the "action pathway:" depression may

[8]In addition, we elicit the time devoted to primary and secondary jobs and domestic work in the past seven days. Estimates using this definition of work time yield similar results. We prefer the time diary approach because it includes time spent on productive tasks that the respondent may not define as work.

[9]We include foods that were purchased, produced at home, or received from others. To compute the value of non-purchased food, we multiply the quantity consumed by median unit values.

[10]We measure these variables in in Rounds 1-4 only. For the DOSPERT scale, participants indicate their willingness to ride a motorbike without a helmet, lend money to a neighbor, eat spoiled food, invest 10 percent of annual income, and delay a child's health care.

lower the demand for prevention by reducing the actual or perceived utility loss from poor health or increasing the psychic cost of taking preventative action. Elicitations of the value of statistical life (VSL) also rely on this principle (León and Miguel 2017). The incentivized lottery exercise asks participants to choose from a menu of binary lotteries with payoffs that differ in variance and expected value. We group prevention and risk intolerance together because they are conceptually related and measured in similar ways.

To measure the incidence of negative shocks (an outcome we did not pre-specify), all survey rounds record whether anyone in the household experienced any of eight shocks in the past four months. These shocks are: an illness lasting at least one month, a death, an unemployment spell of at least one month, the loss of a business, a natural disaster (e.g. a fire or flood), incarceration, a divorce or separation, or another serious loss. We aggregate these shocks according to the Holmes and Rahe (1967) scale, which assigns severity scores to the shocks, and standardize this index.

We assess cognitive performance through three incentivized tests: Raven's Progressive Matrices, which measure fluid intelligence, and forward and backward digit spans, which measure executive function. We use the five-item Satisfaction with Life Scale to measure subjective wellbeing (Kobau et al. 2010). As a measure of participation in household decisions, participants indicate whether they make household financial and employment decisions alone, with other household members, or not at all.

Since each family of outcomes has multiple variables, we create family-specific indices by computing the first principal component of the outcomes within each family. We define the sign of the components within each group so that larger values have a common interpretation. We also standardize these indices to ease interpretation. As exceptions to this approach, net liquid wealth is defined as savings plus credit minus debt and total consumption is defined as the sum of food and non-food consumption. For participation in household decisions, we count the number of decisions (across financial and employment decisions) that the respondent participates in. We also report Benjamini et al. (2006) sharpened q-values that control for the false discovery rate within families of outcomes.

6 Treatment Compliance

Across the three arms that received either PC or LA, 65 percent of participants complied with at least one intervention. Similar proportions of PC and PC/LA participants (45 and 43 percent) took up psychiatric care ($p = 0.51$ for this comparison). Similar proportions of LA and and PC/LA participants (66 and 71 percent) took up livelihoods assistance ($p = 0.36$ for this comparison). Within PC/LA, 31 percent of participants took up both interventions. Figures A3 and A4 further illustrate intervention compliance.

91 percent of people who met with a psychiatrist were diagnosed with depression. Patients received SSRIs for a median of four months. 91 percent of report that they took medications either "every day" or "every other day" and 13 percent of patients continued to take SSRIs after the PC intervention ended.[11] Among LA compliers, 81 percent attended at least one livelihoods workshop and 47 percent received personalized livelihoods assistance.

Appendix A.3 considers the correlates of intervention compliance. PC and PC/LA compliers are more likely to be men than non-compliers, while LA compliers are more likely to have better mental health than non-compliers. However, these differences are not large and compliers and non-compliers do not differ along most dimensions, including SES and household economic circumstances. Moreover, aside from better mental health in LA, complier characteristics do not differ across arms. Because the compliance rate and the characteristics of compliers are similar in PC and PC/LA, differential impacts of PC/LA relative to PC are unlikely to arise because of differences in intervention participation.

[11] Some patients were also diagnosed with anxiety, pain and high blood pressure, which are common depression comorbidities (Hirschfeld 2001, Bair et al. 2003, Meng et al. 2012).

7 Identification and Estimation

We estimate the parameters of the following two equations for respondent i in village j and in round t :

$$Y_{ijt} = \beta_1[I_j \cdot D_t] \; + \; \beta_2[I_j \cdot A_t] \; + \; \beta_3 Y^1_{ij} \; + \; X'_{ij}\beta_4 \; + \; \gamma_t \; + \; \varepsilon_{ijt} \tag{1}$$

$$\begin{aligned} Y_{ijt} = \; & \beta_1[PC_j \cdot D_t] \; + \; \beta_2[LA_j \cdot D_t] \; + \; \beta_3[PC/LA_j \cdot D_t] \; + \\ & \beta_4[PC_j \cdot A_t] \; + \; \beta_5[LA_j \cdot A_t] \; + \; \beta_6[PC/LA_j \cdot A_t] \; + \\ & \beta_7 Y^1_{ij} \; + \; X'_{ij}\beta_8 \; + \; \gamma_t \; + \; \varepsilon_{ijt} \end{aligned} \tag{2}$$

I is an indicator for respondents who were offered "any PC intervention" (PC/LA or PC) or "any intervention" (PC/LA, PC, or LA), while PC, LA, and PC/LA are indicators for the arms that receive PC only, LA only, or both PC and LA. D ("during") and A ("after") are indicators for Rounds 2 and 3 (up until the end of the PC intervention) and Rounds 4 and 5 (up to 1.5 years since the end of the PC intervention). Y^1 is the Round 1 value of the dependent variable. X is a vector of predetermined covariates (indicators for age, gender, and randomization strata) and γ is a vector of round dummies.

The parameters β_1 to β_6 identify the Average Intent to Treat (AIT) effects of each intervention arm under the assumptions that (i) potential outcomes of each treated person are unaffected by the treatment status of other people and (ii) treatment assignment is independent of potential outcomes. Assigning treatment by village minimizes instances of violations of the first assumption through spillovers such as social interactions, while treating 1-2 people per village minimizes village-level general equilibrium effects. Random assignment should ensure that the second assumption holds.

We test three additional hypotheses: that the treatment effects do not differ by arm ($\beta_1 = \beta_2 = \beta_3$ and $\beta_4 = \beta_5 = \beta_6$); that PC and PC/LA have identical effects ($\beta_1 = \beta_3$ and $\beta_4 = \beta_6$); and that there are no complementarities between PC and LA ($\beta_3 - \beta_1 - \beta_2 = 0$ and $\beta_6 - \beta_4 - \beta_5 = 0$). We use OLS and cluster standard errors by village. We also estimate Benjamini et al. (2006) sharpened q-values within each family of outcomes to address the possibility of multiple inference.

Table 1 shows baseline means of key outcome variables and covariates by intervention arm. We report the arm-specific mean of each variable and the p-value indicating the joint significance of the differences in means. P-values are based on OLS regressions with village-clustered standard errors. Columns 1-5 show that most outcomes are balanced across intervention arms in Round 1. However, the table shows that PHQ-9 scores are imbalanced, which could contribute to follow-up differences in this or other outcomes. To address this concern, we also estimate a version of all regressions that uses entropy weights to impose balance across arms in the first three moments of the PHQ-9 distribution (Hainmueller 2012, Hainmueller and Xu 2013). Estimates are robust to weighting, and unweighted and weighted estimates (available from the authors) are generally similar. Below we follow our pre-analysis plan and report unweighted estimates.

8 Depression Symptoms, Work Time, and Earnings

Table 2 shows treatment effects on standardized PHQ-9 scores and indicators for PHQ-9 < 5 and PHQ-9 < 10. Panel A follows Equation (1) to show pooled estimates for arms receiving any intervention and any PC intervention. In the "during" period, PHQ-9 scores decline by 0.17 SD ($p = 0.01$), the share of people with scores below 5 increases by 5.8 percentage points (39 percent, $p = 0.01$) and the share of people with scores below 10 increases by 9.7 percentage points (20 percent, $p = 0.03$) for participants in any PC arm. In the "after" period, PHQ-9 scores remain 0.12 SD lower ($p = 0.08$), the share with scores below 5 remain 6.2 percentage points higher (28 percent, $p = 0.02$). Panel B follows Equation (2) and shows that impacts are largest for PC/LA respondents. We find a small and statistically insignificant effect of LA alone on mental health. The effect of PC/LA is greater than the sum of the effects of PC and LA after the intervention, which suggests a complementarity between the treatments. These effect sizes are consistent with the literature, as we discuss in Appendix A.4.

Two figures provide more detail about the treatment effects on mental health. Figure 2 plots the PHQ-9 densities for any intervention, any PC intervention, and control (top panels) and for each of the four intervention arms (bottom panels). Depression symptoms decrease throughout the support both during and after the PC intervention. As noted, impacts are largest for PC/LA participants. Figure 3 plots average PHQ-9 scores by intervention arm and round. The gap between treatment and control is largest for the PC/LA arm in every round. However, this difference is no longer significant by Round 5. The attenuation in the treatment effect over time arises because symptoms abate in the control group over time. This pattern is consistent Spijker et al.'s (2002) finding that depression symptoms diminish over 1-2 years for most people but persist for 10-30 percent of patients.

Bundling PC and LA appears to magnify and extend the effectiveness of PC. To quantify the differential impact of PC/LA, we compute the total reduction in exposure to depression symptoms in SD $\times$ months over the study period for both PC and PC/LA.[12] PC/LA reduces depression symptoms by 5.7 SD $\times$ months and PC reduces depression symptoms by 1.3 SD $\times$ months (based on estimates that are not statistically significant). Since PC/LA costs just 6 percent more than PC alone ($234 versus $221 per study participant) while being four times more effective, bundling PC and LA is more cost effective in terms of reducing depression symptoms than offering PC alone.[13]

Following our pre-analysis plan, Appendix A.6 estimates heterogeneity in the impact on mental health according to several baseline characteristics, including gender, age, socioeconomic status, physical health, cognition, and exposure to negative shocks during childhood. These estimates appear in Figure A5. Impacts are larger for respondents with above-median age and below-median physical health in both the "during" and "after" periods. Impacts are also larger for those with above-median experiences of childhood shocks in the "after" period only.

Table 3 shows treatment effects on work time and earnings. There are no statistically significant pooled impacts on these outcomes either during or after the PC intervention. However, we find negative effects on work time during the intervention for the PC arm and after the intervention for the PC/LA arm. This pattern may be caused by a higher marginal

[12]We multiply the "during" estimates in Column 1 of Table 2 by eight months and the "after" estimates in Column 4 by eighteen months.

[13]Appendix A.5 describes this exercise in more detail. Intervention costs are measured in January 2017 Indian rupees, which we convert to US dollars.

utility of leisure or self-care or reduced labor demand and supply due to stigma (Corrigan et al. 2001, Bharadwaj et al. 2017).

Despite 68 percent compliance, the LA intervention does not increase work time or earnings, regardless of whether it is paired with PC. We conjecture that offering PC and LA concurrently rather than sequentially may have weakened the effect of LA. If ameliorating depression symptoms is a prerequisite for realizing economic opportunities, results may be stronger if PC precedes LA by several months. The preponderance of women in the study sample may also contribute to this pattern. India has particularly low female labor force participation, and labor supply in our sample may be inelastic. Since LA alone does not significantly reduce depression symptoms or improve labor market outcomes, we focus the subsequent discussion on the impacts of "any PC intervention" (PC or PC/LA) while continuing to report the impacts of "any intervention" (including LA) for completeness.

9 Human Capital Investment, Wealth, and Consumption

We consider treatment effects on socioeconomic outcomes, including child human capital investment, hygiene and sanitation, net liquid wealth, and consumption. Figure 4 summarizes the standardized impacts on these outcomes. The interventions increase child human capital investment in the "after" period and net liquid wealth in the "during" period. We do not find statistically significant effects on consumption or hygiene/sanitation.

Estimates for child human capital investment appear in Table 4. We report multiple testing adjusted q-values in brackets for index components in this and subsequent tables. Outcomes are household averages across children aged 5-18.[14] For participants in any PC arm, child human capital investment increases by 0.26 SD in the "after" period.[15] An inspection of index components shows that enrollment increases by 7 percentage points ($p = 0.03$), a large effect considering that 89 percent of control children are enrolled. Attendance increases by 0.4 days ($p = 0.06$), while there is no significant change in time spent on

[14] 54 percent of study participants live with children aged 5-18, and the impact on depression symptoms for this subgroup is similar to the estimates in Table 2.

[15] Consistent with this result, depression severity is associated with lower baseline child investment. Impacts of PC/LA and PC are similar and do not differ significantly for any educational outcomes.

homework. Finally, child labor decreases by 3.4 percentage points (62 percent, $p = 0.08$).[16] The strong impact on child human capital in the "after" period could arise because mental health effects are largest in Rounds 3 and 4 or because school enrollment mechanically adjusts with a lag at the start of the new school year. Table 5 shows small and statistically insignificant effects on sanitation and hygiene.

Figure 5 investigates heterogeneity in the effect on child human capital investment in the "after" period. This analysis, which we did not pre-specify, uses child-level data and examines differential impacts of any PC intervention by child age, relation to the study participant, child gender, baseline child human capital investment, participant gender, and baseline participant PHQ-9 score.[17] We divide at the median for child age (14), baseline participant PHQ-9 score (15), and baseline child human capital investment (0.18 SD). Impacts are significantly larger for older children ($p < 0.01$). Point estimates are larger for boys, children with high baseline human capital investment, and children associated with study participants who have milder depression symptoms, although these differences are not statistically significant.[18] Tables A5 and A6 examine impact heterogeneity for component outcomes. In Panel A of Table A5, enrollment rises from 80 to 94 percent ($p = 0.001$), weekly attendance days increase from 3.9 to 5.0 ($p < 0.001$), and child labor declines from 14 to 6 percent ($p = 0.03$) for 14-18 year old children.

Table 6 shows impacts on net liquid wealth (savings plus credit minus debt) and its components. For participants in any PC intervention, net liquid wealth increases by 1709 rupees (US$ 24.10, $p = 0.10$) in the "during" period but is similar to the control group in the "after" period. This effect arises primarily because "any PC" households reduce debt exposure by 1704 rupees (18 percent) in Column 4.[19] Although some LA participants

[16]We also collected health and anthropometric data for children under age five. However only 85 study participants resided with young children who provided measurements. Estimates for these outcomes (available from the authors) are imprecise but align with the positive impacts on children human capital discussed here.

[17]We weight by the inverse number of children in the household (to avoid over-weighting large households) and cluster standard errors by village.

[18]In principle, the impact on education could arise because the recovery of study participants leads to time reallocation within the household. This explanation seems unlikely since Table 3 shows no effect on participants' work time. Consistent with this conclusion, we do not find larger effects for girls (who have greater caretaking and home production responsibilities) or for participants with more severe baseline depression.

[19]To examine possible impacts on illiquid wealth, we create a durable goods index based on household

received small loans, these loans cannot account for the observed impact on wealth.[20]

Table 7 shows a small and statistically insignificant effect on total consumption. However, food consumption increases by 17.5 rupees (6 percent, $p = 0.10$) and child clothing expenditures increase by 1.8 rupees (25 percent, $p = 0.12$) in the "after" period, although both estimates have q-values of 0.31. We find no impact on medical expenditures, suggesting that PC does not crowd out other mental health care expenses.

It is unclear how the interventions reduce household indebtedness without increasing earnings or reducing measured household consumption. Households may make better financial decisions or face fewer negative shocks, leading to fewer unmeasured expenditures. We return to this issue in the next section.

10 Mechanisms

This section examines impacts on potential pathways from depression treatment to socioeconomic outcomes, including prevention and risk intolerance, incidence of negative shocks, subjective wellbeing, participation in household decisions, and cognitive performance. Figure 6 shows standardized treatment effects for these families of outcomes. The interventions do not have significant effects on any of these outcome families in the "during" period. In the "after" period, the interventions increase prevention behavior and reduce the incidence of negative shocks.

Table 8 shows that the prevention and risk intolerance index increases by 0.20 SD ($p = 0.04$) in the "after" period, with notable impacts on riding a motorbike without a helmet, lending money to a neighbor, and investing 10 percent of income. If depression treatment causes people to enjoy life more, overcome their barriers to taking action, or perceive the returns to actions less pessimistically, it may encourage them to engage in prevention behavior and avoid negative shocks.

To investigate this hypothesis, Table 9 examines impacts on the exposure to negative

ownership of a chair, a bed, a table, a fan, a television, a refrigerator, a bicycle, a motorcycle, and a car in Rounds 1-4. Impacts on this index and its components are small and statistically insignificant.

[20] 83 study participants received loans of under Rs. 6500. Assuming no repayment, this outlay equates to an increase in wealth of at most Rs. 899 per "any intervention" participant. Table 6 shows that wealth increases by more than twice this amount (Rs. 1914) in the "during" period. In addition, we find an impact on wealth in the PC arm, which did not receive loans.

shocks such as illness, job loss, or business loss within the past four months. The interventions significantly reduce shock exposure in the "after" period. "Any PC" participants experience 0.14 SD fewer shocks. An examination of Columns 2-8 shows that signs are consistently negative, although few individual shock impacts are statistically significant. These results support the interpretation that additional prevention behavior leads participants to avoid negative shocks.[21]

Table 10 shows that the interventions reduce cognitive performance in the "after" period. This effect is consistent with the lack of higher earnings from Table 3. We investigate two possible explanations for this negative effect. Cognitive performance could decline if participants exerted less effort or focused less intensively on the exercises. However, we do not find significant impacts on the mean or the distribution of completion times for cognitive exercises, suggesting that participants did not change their approach to completing these exercises. Secondly, lower cognitive performance could be related to antidepressant discontinuation syndrome (Davies and Read 2019), which may cause symptoms such as lethargy and fatigue. This explanation is unlikely because only 12 percent of PC compliers report any side effects of treatment. We conclude that improved cognitive performance is an unlikely explanation for the increase in child human capital investment.

Since the interventions may enhance life satisfaction, Table 11 shows impacts on subjective wellbeing. Treatment effects are small and statistically insignificant in most cases. However, life satisfaction is subjective, and the lack of an impact on this outcome may reflect changes in aspirations, expectations, or reference points. The negative effect in Column 6 supports this interpretation.

Finally, Table 12 examines impacts on participation in household decisions. Estimates for the index in Column 1 are not statistically significant. However, some estimates in Columns 2-5 suggest a shift toward joint rather than individual decision making. One potential concern is that these patterns could reflect a decline in participants' status within

[21] We attempted to measure time preferences using a real-effort Convex Time Budget task (Augenblick et al. 2015). The majority of participants behaved as if they either did not understand the task or did not respond to its incentives. For example, 36 percent of participants' time allocation choices violated the Law of Demand and 27 percent of participants' choices were invariant to required effort. This behavior is consistent with our conjecture that depression fosters inaction. The quality of choices is lower for people with more severe depression symptoms and the interventions reduce the share of people who appeared unresponsive to incentives or violate the Law of Demand.

the household. In Round 5, we collected data on physical autonomy (ability to leave the house without permission) and participation in communal meals, which proxy for status (Palriwala 1993, Coffey et al. 2018). In Table A4 we find no impact on these outcomes, which suggests that the interventions do not decrease autonomy or status.

11 Treatment Complementarity and Tests of Joint Significance

Throughout our analysis, we test five hypotheses: (1) that the effect of any intervention is zero, (2) that the effect of any PC intervention is zero, (3) that the three interventions have equal effects, (4) that PC and PC/LA have equal effects, and (5) that the effects of PC and LA are additive, so that PC/LA = PC + LA. Here, we test whether we can reject these hypotheses jointly across the eleven aggregate outcomes by using seemingly unrelated regression to estimate all treatment effects as a system of equations.[22] We reject all five hypotheses with $p = 0.054$ for Hypothesis 1, $p = 0.027$ for Hypothesis 2, $p < 0.001$ for Hypothesis 3, $p = 0.034$ for Hypothesis 4, and $p = 0.017$ for Hypothesis 5. These findings reinforce the conclusion that PC/LA has systematically different effects from PC alone, and that there is a complementarity between PC and LA. Therefore, the higher mental health impacts in PC/LA correlate with bigger effects on the other outcomes.

12 Discussion

There is an urgent need for mental health care in India and other developing countries: in a representative survey we conducted adjacent to the study area (detailed in Appendix A.1), 24 percent of adults had at least mild depression symptoms and depression was strongly correlated with low socioeconomic status. However, evidence regarding the effectiveness of depression treatment in low-income settings is limited (Patel et al. 2007). The impact of treatment may differ across developed and developing countries due to disparities in health care access and quality, the initial severity of depression, the prevalence of different types of depression (Harald and Gordon 2012), and treatment compliance. A meta-analysis by

[22]The eleven outcomes are PHQ-9, work hours, earnings, the child investment, sanitation/hygiene, net worth, total consumption, prevention and risk intolerance, subjective wellbeing, cognitive performance, and participation in household decisions.

Singla et al. (2017) finds that psychotherapy in low-income and middle-income countries has an average impact on symptoms of 0.46 SD (95% C.I.: 0.33 – 0.59 SD). We are not aware of a comparable meta-analysis for pharmacotherapy in these settings.[23] Since most of the included studies have very high participation, we compute average treatment effect on the treated (ATT) estimates for comparison in Appendix A.4. According to ATT estimates, the PC/LA intervention reduces depression severity by 0.53 SD in the "during" period and by 0.46 SD in the "after" period. These estimates are similar to the impact reported by Singla et al. (2017) and larger than the impact reported by Gartlehner et al. (2017).

We find that jointly providing pharmacotherapy and livelihoods assistance through the PC/LA intervention has the largest impact on depression symptoms. Since the LA intervention is relatively inexpensive, augmenting PC with LA improves cost effectiveness. Research should investigate the reasons for this complementarity. One possibility is that, by providing coaching and attention, the LA intervention functions in a similar way to psychotherapy. This interpretation is consistent with Wiles et al. (2016), who find that pairing pharmacotherapy and psychotherapy improves cost effectiveness.

We find that treating adult depression increases child human capital investment. Using the AIT estimate for "any PC intervention" in the "after" period, treatment increases child investment by 0.26 SD overall and by 0.46 SD for children 14 and older. The larger impact for older children suggests that effects may translate into additional completed schooling. These estimates parallel Baranov et al.'s (2020) impacts on "time intensive parental investments" from treating Pakistani mothers with perinatal depression.

Enrollment estimates allow us to benchmark these impacts further. Table A5 shows that enrollment rises from 80 to 94 percent for 14-18 year old children in "Any PC" households. By contrast, *Oportunidades*, Mexico's conditional cash transfer program, which partially subsidized school attendance, increased secondary school enrollment from 65 percent to 73 percent for rural children aged 11-16 (Angelucci et al. 2010). Our enrollment impact is comparable to the average impacts of either conditional or unconditional cash transfers in the meta-analysis by Baird et al. (2014). Our results suggest that adult depression may

[23] According to Gartlehner et al. (2017), the impact of pharmacotherapy in industrialized countries appears to be around 0.35 SD (95% C.I. 0.31 – 0.38 SD).

undermine children's educational attainment and foster poverty and depression in the next generation. This finding contributes to our understanding of the psychological and cognitive determinants of poverty (Mullainathan and Shafir 2013, Haushofer and Fehr 2014, Schilbach et al. 2016, Persson and Rossin-Slater 2018, Adhvaryu et al. 2019, Ridley et al. 2020).

The interventions increase the demand for prevention and reduce the incidence of negative shocks. This finding suggests that depression treatment may increase the value of statistical life, which is commonly measured by the willingness to pay to avoid mortality risk (Eeckhoudt and Hammitt 2004, León and Miguel 2017). It also suggests a second channel through which depression may contribute to poverty traps: avoiding negative shocks has an important dynamic effect on the ability to escape poverty (Lybbert et al. 2004, Carter and Barrett 2006). By increasing the tolerance for negative shocks, depression may make it more difficult to accumulate wealth. Lastly, these results align with a growing body of evidence that prevention and risk-management behaviors depend upon experiences and emotions (Loewenstein 2000, Malmendier and Nagel 2011, Guiso et al. 2018).

The joint positive effect of depression treatment on human capital investment and avoidance of negative shocks is consistent with the "action" pathway: depression may create barriers to action by flattening actual or perceived utility, or by increasing the cost of reaching a decision. Reductions in anhedonia, indecisiveness, or pessimism could jointly increase child human capital investment and prevent negative shocks. While our results are consistent with this explanation, we cannot distinguish between the specific pathways.

Despite the Mental Health Care Act of 2017, which created a legally binding right to mental health care in India (Duffy and Kelly 2019), only 15 percent of people with depression in India currently make contact with the health system (Gautham et al. 2020). Our implementation of PC and LA shows that it is feasible to reduce depression severity in the community using the existing infrastructure. However, establishing feasibility is only a first step in expanding mental health care use. Policymakers must identify and address the existing supply and demand constraints. On the supply side, the scarcity of trained mental health care providers is an important limitation on improving health care access (Patel et al. 2016). Since psychiatric practitioners are scarce in India, initiatives have focused on "task-sharing" by training lay counselors to provide basic counseling services (Patel et al. 2017). Pharmacotherapy also economizes on provider human capital and may provide another approach to scale up mental health care provision in the short term. Stigma and misinformation may also constrain demand. We call for further research in this direction.

Table 1: Baseline Characteristics by Intervention Arm

	PC/LA	PC	LA	C	P-value
	(1)	(2)	(3)	(4)	(5)
A: Respondent Characteristics					
Age	35.2	35.0	34.9	35.6	0.77
Female	0.83	0.84	0.85	0.90	0.07*
Married	0.78	0.78	0.75	0.78	0.83
Schooling (years)	5.3	4.7	5.0	5.0	0.67
Scheduled Caste/Tribe	0.51	0.55	0.55	0.50	0.52
Literacy (1-3)	1.9	1.9	1.9	1.9	0.84
Household size	4.2	4.2	4.0	4.2	0.37
B: Outcomes					
PHQ-9 depression scale (0-27)	13.6	13.9	13.6	14.4	0.04**
Weekly paid and unpaid work hours	55.3	55.0	56.9	57.0	0.81
Weekly earnings (Rs.)	411	365	315	308	0.44
Child human capital index	-0.10	-0.05	0.12	0.00	0.57
Net worth per capita (Rs.)	-8801	-8060	-8523	-10,810	0.54
Total consumption per capita (Rs.)	487	533	519	504	0.26
Hygiene and sanitation index	-0.06	-0.05	0.02	0.00	0.90
B: Mechanisms					
Risk tolerance index	0.24	0.05	0.19	0.00	0.03**
Cognition index	0.05	-0.12	-0.06	0.00	0.53
Recent negative life event index	-0.04	-0.01	-0.02	0.00	0.93
Intrahousehold bargaining power index	0.22	0.07	0.25	0.00	0.01**
Subjective wellbeing index	-0.01	0.11	0.08	0.00	0.43
Number of rounds present (1-5)	4.46	4.31	4.58	4.51	0.07*
Joint p-value	–	–	–	–	0.12
Observations	193	207	205	395	–

Note: PC = psychiatric care, LA = livelihoods assistance, C = control. The table reports Round 1 means of key demographic and outcome variables. P-values, which are based on regressions with village-clustered standard errors, test whether the four arms are jointly significantly different. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2: Impact on Depression Severity

	During the PC Intervention			After the PC Intervention		
	PHQ-9 (std.)	PHQ-9 $<$ 5	PHQ-9 $<$ 10	PHQ-9 (std.)	PHQ-9 $<$ 5	PHQ-9 $<$ 10
	(1)	(2)	(3)	(4)	(5)	(6)
A: Pooled Estimates						
Any PC Intervention	-0.17**	0.058**	0.097***	-0.12*	0.062**	0.031
	(0.068)	(0.023)	(0.032)	(0.066)	(0.026)	(0.031)
Any Intervention	-0.12*	0.041*	0.082***	-0.056	0.043*	0.0099
	(0.064)	(0.022)	(0.030)	(0.060)	(0.023)	(0.028)
B: Estimates by Arm						
PC/LA	-0.24***	0.086***	0.14***	-0.21**	0.10***	0.066*
	(0.082)	(0.029)	(0.039)	(0.085)	(0.035)	(0.040)
PC	-0.11	0.030	0.056	-0.021	0.018	-0.0043
	(0.082)	(0.027)	(0.039)	(0.077)	(0.029)	(0.037)
LA	-0.034	0.0100	0.051	0.051	0.011	-0.029
	(0.087)	(0.030)	(0.041)	(0.081)	(0.031)	(0.037)
H_0: $PC/LA = PC = LA$	0.109	0.072	0.089	0.023	0.037	0.099
H_0: $PC/LA = PC$	0.162	0.081	0.060	0.043	0.025	0.118
H_0: $PC/LA = PC + LA$	0.455	0.299	0.602	0.052	0.121	0.088
Control mean of outcome	0.00	0.15	0.48	0.00	0.22	0.63
Observations	3476	3476	3476	3476	3476	3476

Note: The table reports AIT effects following Equation (1) in Panel A and Equation (2) in Panel B. Village-clustered standard errors appear in parentheses. "During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent, the baseline dependent variable, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. The outcome in Columns 1 and 4 is the standardized PHQ-9 depression severity score. The outcome in Columns 2 and 5 is an indicator for PHQ-9 scores below 5, indicating no depression. The outcome in Columns 3 and 6 is an indicator for PHQ-9 scores below 10, indicating less than moderate depression. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Impact on Work and Earnings

	During the PC Intervention		After the PC Intervention	
	Hours	Earnings	Hours	Earnings
	(1)	(2)	(3)	(4)
A: Pooled Estimates				
Any PC Intervention	-1.65	-37.7	-1.63	-32.0
	(1.33)	(47.1)	(1.50)	(52.0)
Any Intervention	-1.43	-45.7	-1.60	-12.7
	(1.21)	(43.4)	(1.36)	(46.6)
B: Estimates by Arm				
PC/LA	1.29	9.99	-3.02*	5.79
	(1.63)	(58.7)	(1.68)	(68.0)
PC	-4.52***	-84.5	-0.30	-70.0
	(1.61)	(56.5)	(1.96)	(60.1)
LA	-1.03	-60.8	-1.55	22.2
	(1.62)	(60.7)	(1.91)	(60.7)
H_0: $PC/LA = PC = LA$	0.009	0.344	0.423	0.377
H_0: $PC/LA = PC$	0.002	0.156	0.198	0.313
H_0: $PC/LA = PC + LA$	0.006	0.085	0.678	0.575
Control mean of outcome	58.7	577.1	60.40	639.2
Observations	3476	3476	3476	3476

Note: The table reports AIT effects following Equation (1) in Panel A and Equation (2) in Panel B. Village-clustered standard errors appear in parentheses. "During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent, the baseline dependent variable, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. The outcome in Columns 1 and 3 is weekly productive time, including time spent on primary and secondary jobs, child care, cooking, cleaning, laundry, and fetching water. The outcome in Columns 2 and 4 is weekly earnings from primary and secondary jobs. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: Impact on Child Human Capital Investment

	Child Investment Index	Proportion Enrolled	Weekly Attendance	Weekly Homework Hours	Proportion Working
	(1)	(2)	(3)	(4)	(5)
A: During the PC Intervention					
Any PC Intervention	-0.016	-0.0080	-0.16	-0.48	-0.021
	(0.073)	(0.023)	(0.15)	(0.47)	(0.016)
	–	[0.70]	[0.70]	[0.70]	[0.70]
Any Intervention	0.017	0.013	-0.13	-0.30	-0.020
	(0.065)	(0.020)	(0.14)	(0.46)	(0.014)
	–	[0.52]	[0.33]	[0.52]	[0.14]
Control mean	0	0.896	3.84	4.43	0.057
H_0: $PC/LA = PC = LA$	0.083	0.019	0.339	0.459	0.227
H_0: $PC/LA = PC$	0.041	0.185	0.150	0.308	0.110
H_0: $PC/LA = PC + LA$	0.026	0.018	0.412	0.468	0.044
B: After the PC Intervention					
Any PC Intervention	0.26**	0.069**	0.40*	0.88	-0.034*
	(0.10)	(0.032)	(0.23)	(0.71)	(0.019)
	–	[0.12]	[0.12]	[0.12]	[0.12]
Any Intervention	0.22**	0.063**	0.44**	0.51	-0.030*
	(0.095)	(0.031)	(0.21)	(0.63)	(0.018)
	–	[0.09]	[0.09]	[0.15]	[0.70]
Control mean	0	0.889	4.39	3.90	0.055
H_0: $PC/LA = PC = LA$	0.438	0.919	0.871	0.440	0.380
H_0: $PC/LA = PC$	0.435	0.915	0.674	0.539	0.284
H_0: $PC/LA = PC + LA$	0.138	0.356	0.138	0.680	0.134
Observations	1397	1397	1397	1397	1397

Note: The table reports AIT effects following Equation (1). The "during" period in Panel A includes Rounds 2-3 and the "after" period in Panel B includes Round 4. Child human capital data are not available in Round 5. "During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent, the baseline dependent variable, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. Outcomes in Columns 2-4 are averages across children aged 5-18 within the household. In Column 1, the Child Investment Index is the standardized first principal component of the outcomes in Columns 2-5. Child labor enters the index negatively. We adjust for multiple inference across the component outcomes in Columns 2-5 and report Benjamini et al. (2006) sharpened q-values in brackets. Stars indicate statistical significance according to unadjusted p-values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: Impacts on Sanitation and Hygiene

	Sanitation and Hygiene Index (1)	No Open Defecation (2)	No Garbage Visible (3)	Clean Kitchen (4)	Clean Hands (5)	Clean Fingernails (6)
A: During the PC Intervention						
Any PC Intervention	-0.087	-0.043	-0.030	0.0045	-0.058	-0.057
	(0.069)	(0.059)	(0.056)	(0.049)	(0.053)	(0.056)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]
Any Intervention	-0.069	-0.044	-0.043	0.0080	-0.049	-0.014
	(0.063)	(0.053)	(0.050)	(0.044)	(0.047)	(0.051)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]
Control mean	0.00	3.43	3.29	2.06	3.33	3.16
H_0: $PC/LA = PC = LA$	0.490	0.571	0.665	0.977	0.407	0.128
H_0: $PC/LA = PC$	0.291	0.296	0.494	0.908	0.190	0.686
H_0: $PC/LA = PC + LA$	0.606	0.703	0.896	0.802	0.480	0.716
B: After the PC Intervention						
Any PC Intervention	0.012	0.035	0.055	-0.027	-0.037	0.0040
	(0.073)	(0.061)	(0.056)	(0.053)	(0.060)	(0.061)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]
Any Intervention	-0.026	0.0047	0.025	0.012	-0.069	-0.032
	(0.068)	(0.056)	(0.050)	(0.049)	(0.056)	(0.057)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]
Control mean	0.00	3.26	3.21	2.15	3.18	3.16
H_0: $PC/LA = PC = LA$	0.349	0.420	0.214	0.280	0.496	0.343
H_0: $PC/LA = PC$	0.472	0.544	0.190	0.721	0.881	0.564
H_0: $PC/LA = PC + LA$	0.873	0.993	0.460	0.601	0.319	0.660
Observations	3381	3381	3381	3381	3381	3381

Note: The table reports AIT effects following Equation (1). The "during" period in Panel A includes Rounds 2-3 and the "after" period in Panel B includes Rounds 4-5."During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent and survey round indicators. All regressions except Columns 5 and 6 control for the baseline dependent variable. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. In Column 1, the Sanitation and Hygiene Index is the standardized first principal component of the outcomes in Columns 2-6. We adjust for multiple inference across the component outcomes in Columns 2-6 and report Benjamini et al. (2006) sharpened q-values in brackets. Stars indicate statistical significance according to unadjusted p-values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Impacts on Household Wealth

	Net Worth	Savings	Credit	Debt
	(1)	(2)	(3)	(4)
A: During the PC Intervention				
Any PC Intervention	1709.4*	-61.56	45.17	-1704.4*
	(1022.5)	(43.16)	(112.3)	(1001.4)
	–	[0.30]	[0.30]	[0.30]
Any Intervention	1914.4**	-62.9	12.3	-1929.4**
	(923.3)	(39.3)	(70.7)	(911.8)
	–	[0.12]	[0.40]	[0.12]
Control mean	-9640	401	185	10,225
H_0: $PC/LA = PC = LA$	0.71	0.64	0.45	0.77
H_0: $PC/LA = PC$	0.50	0.35	0.55	0.64
H_0: $PC/LA = PC + LA$	0.07	0.91	0.90	0.09
B: After the PC Intervention				
Any PC Intervention	-1317.3	-62.30	-136.5	1151.9
	(1193.9)	(44.04)	(94.97)	(1188.9)
	–	[0.31]	[0.31]	[0.31]
Any Intervention	181.7	-36.8	-110.5	-281.3
	(1015.5)	(41.2)	(90.6)	(1013.9)
	–	[0.99]	[0.99]	[0.99]
Control mean	-9607	412	352	10,371
H_0: $PC/LA = PC = LA$	0.00	0.48	0.01	0.00
H_0: $PC/LA = PC$	0.35	0.95	0.02	0.46
H_0: $PC/LA = PC + LA$	0.03	0.88	0.26	0.05
Observations	3455	3455	3455	3455

Note: The table reports AIT effects following Equation (1). The "during" period in Panel A includes Rounds 2-3 and the "after" period in Panel B includes Rounds 4-5."During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent, the baseline dependent variable, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. Net worth (Column 1) = savings (Column 2) + Credit (Column 3) - Debt (Column 4). Outcomes in Columns 1-4 are expressed per capita within the household and winsorized at 5 percent. We adjust for multiple inference across the component outcomes in Columns 2-4 and report Benjamini et al. (2006) sharpened q-values in brackets. Stars indicate statistical significance according to unadjusted p-values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Impacts on Consumption Expenditures

	Total	Food	Non-Food	Child Clothing	Medical Care
	(1)	(2)	(3)	(4)	(5)
A: During the PC Intervention					
Any PC Intervention	-13.9	-12.5	0.43	-0.18	0.67
	(26.1)	(12.7)	(17.5)	(1.38)	(5.50)
	–	[0.99]	[0.99]	[0.99]	[0.99]
Any Intervention	-6.08	-13.3	9.08	-0.17	0.64
	(23.4)	(11.4)	(15.6)	(1.25)	(4.79)
	–	[0.99]	[0.99]	[0.99]	[0.99]
Control mean	624	335	289	9.2	55.8
H_0: $PC/LA = PC = LA$	0.117	0.550	0.059	0.778	0.659
H_0: $PC/LA = PC$	0.092	0.276	0.115	0.493	0.376
H_0: $PC/LA = PC + LA$	0.260	0.139	0.665	0.556	0.514
B: After the PC Intervention					
Any PC Intervention	22.7	17.5*	6.53	1.75	-0.47
	(23.4)	(10.6)	(15.6)	(1.11)	(4.51)
	–	[0.31]	[0.72]	[0.31]	[0.85]
Any Intervention	25.4	14.0	12.6	1.73*	3.09
	(22.7)	(10.0)	(15.1)	(1.01)	(4.31)
	–	[0.49]	[0.49]	[0.49]	[0.49]
Control mean	564	277	288	7.0	45.5
H_0: $PC/LA = PC = LA$	0.947	0.750	0.679	0.978	0.146
H_0: $PC/LA = PC$	0.831	0.813	0.762	0.834	0.434
H_0: $PC/LA = PC + LA$	0.587	0.591	0.544	0.532	0.092
Observations	3403	3403	3403	3403	3403

Note: The table reports AIT effects following Equation (1). The "during" period in Panel A includes Rounds 2-3 and the "after" period in Panel B includes Rounds 4-5. "During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent, the baseline dependent variable, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. Food consumption in Column 2 is the total household consumption across 23 common local food groups within the past week. Non-food consumption in Column 3 is total household consumption of 13 non-durable non-food commodities. These values are measured over 1-2 months (depending on the item) and converted into weekly values. Total Consumption in Column 1 is the sum of food and non-food consumption. Clothing and medical care in Columns 4-5 are included in non-food consumption. We adjust for multiple inference across the component outcomes in Columns 2-5 and report Benjamini et al. (2006) sharpened q-values in brackets. Stars indicate statistical significance according to unadjusted p-values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: Impact on Prevention Behavior and Risk Intolerance

	Prevention and Risk Intolerance Index	Motorbike w/o Helmet	Lend to Neighbor	Eat Spoiled Food	Invest 10% of Income	Delay Child's Health Care	Willing to Take Risks	Lottery Task
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A: During the PC Intervention								
Any PC Intervention	0.018	-0.034	0.036	-0.12	-0.065	0.043	-0.015	-0.059
	(0.068)	(0.080)	(0.077)	(0.082)	(0.083)	(0.083)	(0.084)	(0.086)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]
Any Intervention	0.059	-0.051	-0.033	-0.12*	-0.12	0.032	0.040	-0.047
	(0.061)	(0.071)	(0.069)	(0.071)	(0.073)	(0.076)	(0.077)	(0.078)
	–	[0.92]	[0.92]	[0.56]	[0.56]	[0.92]	[0.92]	[0.92]
Control mean	0	1.64	1.91	3.39	2.49	2.46	2.90	3.08
H_0: $PC/LA = PC = LA$	0.179	0.859	0.037	0.829	0.189	0.531	0.217	0.365
H_0: $PC/LA = PC$	0.296	0.921	0.208	0.545	0.676	0.289	0.429	0.167
H_0: $PC/LA = PC + LA$	0.054	0.512	0.032	0.187	0.059	0.466	0.730	0.222
B: After the PC Intervention								
Any PC Intervention	0.20**	-0.27**	-0.26*	0.066	-0.25*	-0.075	-0.063	-0.0014
	(0.097)	(0.13)	(0.13)	(0.11)	(0.13)	(0.12)	(0.12)	(0.12)
	–	[0.15]	[0.15]	[0.67]	[0.15]	[0.67]	[0.67]	[0.99]
Any Intervention	0.11	-0.17	-0.17	0.070	-0.18	0.081	-0.0036	-0.041
	(0.091)	(0.12)	(0.12)	(0.10)	(0.12)	(0.11)	(0.11)	(0.11)
	–	[0.77]	[0.77]	[0.77]	[0.77]	[0.77]	[0.99]	[0.77]
Control mean	0	2.06	2.35	3.00	2.59	2.97	3.17	3.21
H_0: $PC/LA = PC = LA$	0.040	0.143	0.170	0.731	0.345	0.002	0.351	0.164
H_0: $PC/LA = PC$	0.450	0.484	0.946	0.435	0.445	0.286	0.372	0.077
H_0: $PC/LA = PC + LA$	0.850	0.625	0.981	0.314	0.432	0.360	0.830	0.056
Observations	2643	2643	2643	2643	2643	2643	2643	2643

Note: The table reports AIT effects following Equation (1). The "during" period in Panel A includes Rounds 2-3 and the "after" period in Panel B includes Rounds 4-5. "During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent, the baseline dependent variable, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. The Prevention and Risk Intolerance Index in Column 1 is the first principal component of the outcomes in Columns 2-8, which we sign negatively so that larger values indicate greater prevention. Columns 2-6 measure prevention behavior according to the Blais and Weber (2006) DOSPERT scale. General risk tolerance appears in Column 7. Negative estimates in columns 2-7 mean that the treatment *increases* prevention behavior. The lottery task (Eckel and Grossman 2008) in Column 8 is a categorical variable that ranges from 1-6 with larger values indicating higher risk tolerance. We adjust for multiple inference across the component outcomes in Columns 2-8 and report Benjamini et al. (2006) sharpened q-values in brackets. Stars indicate statistical significance according to unadjusted p-values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 9: Impacts on the Frequency of Negative Shocks

	Shock Index	Occurrence Within the Household in the Past Four Months							
		Illness	Death	Job Loss	Business Loss	Fire or Flood	Jail	Divorce	Other
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A: During the PC Intervention									
Any PC Intervention	-0.029	-0.013	-0.0065	0.0053	-0.011	-0.038	0.011	0.0018	0.0071
	(0.067)	(0.027)	(0.0078)	(0.032)	(0.031)	(0.024)	(0.0071)	(0.011)	(0.022)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.85]	[0.85]	[0.99]	[0.99]
Any Intervention	-0.021	-0.0011	-0.0057	0.0078	-0.010	-0.040*	0.0082	0.0054	-0.0050
	(0.060)	(0.025)	(0.0071)	(0.029)	(0.027)	(0.022)	(0.0063)	(0.011)	(0.019)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]
Control mean	0.00	0.42	0.02	0.53	0.33	0.19	0.01	0.02	0.15
H_0: $PC/LA = PC = LA$	0.259	0.585	0.876	0.940	0.126	0.774	0.106	0.595	0.149
H_0: $PC/LA = PC$	0.107	0.968	0.665	0.746	0.042	0.502	0.038	0.943	0.165
H_0: $PC/LA = PC + LA$	0.191	0.704	0.540	0.973	0.069	0.110	0.131	0.533	0.069
B: After the PC Intervention									
Any PC Intervention	-0.14**	-0.043	-0.014*	-0.028	-0.020	-0.033	-0.016	-0.0016	-0.039
	(0.065)	(0.032)	(0.0078)	(0.030)	(0.030)	(0.028)	(0.014)	(0.0094)	(0.027)
	–	[0.72]	[0.72]	[0.72]	[0.72]	[0.72]	[0.72]	[0.72]	[0.72]
Any Intervention	-0.11*	-0.039	-0.0083	-0.012	-0.0049	-0.029	-0.019	-0.0022	-0.041*
	(0.060)	(0.028)	(0.0080)	(0.027)	(0.026)	(0.027)	(0.013)	(0.0092)	(0.024)
	–	[0.75]	[0.75]	[0.91]	[0.91]	[0.75]	[0.75]	[0.91]	[0.75]
Control mean	0.03	0.41	0.03	0.54	0.30	0.30	0.05	0.02	0.23
H_0: $PC/LA = PC = LA$	0.509	0.933	0.350	0.315	0.299	0.948	0.773	0.299	0.908
H_0: $PC/LA = PC$	0.725	0.855	0.865	0.478	0.357	0.943	0.637	0.124	0.695
H_0: $PC/LA = PC + LA$	0.925	0.691	0.803	0.369	0.268	0.750	0.175	0.205	0.564
Observations	3399	3399	3399	3399	3399	3399	3399	3399	3399

Note: The table reports AIT effects following Equation (1). The "during" period in Panel A includes Rounds 2-3 and the "after" period in Panel B includes Rounds 4-5. "During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent, the baseline dependent variable, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. Columns 2-9 indicate whether anyone in the respondent's household has experienced the particular negative shock in the past four months. In Column 1, the Shock Index is standardized and uses Holmes and Rahe (1967) scale to aggregate across outcomes. We adjust for multiple inference across the component outcomes in Columns 2-9 and report Benjamini et al. (2006) sharpened q-values in brackets. Stars indicate statistical significance according to unadjusted p-values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 10: Impacts on Cognitive Performance

	Cognition Index	Ravens Score	Forward Recall	Backward Recall
	(1)	(2)	(3)	(4)
A: During the PC Intervention				
Any PC Intervention	-0.091	-0.15	-0.16**	0.016
	(0.060)	(0.11)	(0.067)	(0.087)
	–	[0.21]	[0.04]	[0.04]
Any Intervention	-0.078	-0.090	-0.13**	-0.042
	(0.056)	(0.10)	(0.061)	(0.080)
	–	[0.62]	[0.12]	[0.68]
Control mean	0.00	3.73	4.95	3.40
H_0: $PC/LA = PC = LA$	0.863	0.302	0.430	0.302
H_0: $PC/LA = PC$	0.868	0.500	0.560	0.800
H_0: $PC/LA = PC + LA$	0.715	0.722	0.951	0.470
B: After the PC Intervention				
Any PC Intervention	-0.17***	-0.10	-0.19***	-0.31**
	(0.064)	(0.11)	(0.073)	(0.13)
	–	[0.13]	[0.03]	[0.03]
Any Intervention	-0.15**	-0.16	-0.12*	-0.26**
	(0.058)	(0.096)	(0.067)	(0.12)
	–	[0.08]	[0.08]	[0.08]
Control mean	0.00	3.79	5.08	3.32
H_0: $PC/LA = PC = LA$	0.754	0.374	0.051	0.696
H_0: $PC/LA = PC$	0.986	0.403	0.705	0.583
H_0: $PC/LA = PC + LA$	0.383	0.056	0.838	0.755
Observations	3476	3476	3476	3476

Note: The table reports AIT effects following Equation (1). The "during" period in Panel A includes Rounds 2-3 and the "after" period in Panel B includes Rounds 4-5. "During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent, the baseline dependent variable, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. Column 2 is the number of correct responses out of eight Ravens Progressive Matrix puzzles. The outcome in Column 3 is the forward digit span and the outcome in Column 4 is the backward digit span. Column 1 is the standardized first principal component of the outcomes in Columns 2-4. We adjust for multiple inference across the component outcomes in Columns 2-4 and report Benjamini et al. (2006) sharpened q-values in brackets. Stars indicate statistical significance according to unadjusted p-values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 11: Impacts on Subjective Wellbeing

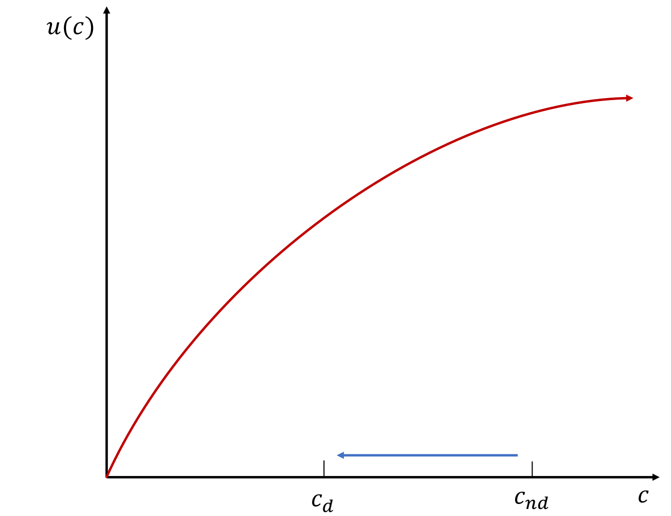
	Wellbeing Index	Ideal Life	Excellent Conditions	Satisfied with Life	Have Important Things	Nothing to Change
	(1)	(2)	(3)	(4)	(5)	(6)
A: During the PC Intervention						
Any PC Intervention	-0.029	-0.10	-0.044	0.039	0.035	-0.0017
	(0.063)	(0.065)	(0.064)	(0.067)	(0.058)	(0.084)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]
Any Intervention	-0.081	-0.12**	-0.056	-0.010	-0.036	-0.032
	(0.058)	(0.059)	(0.059)	(0.061)	(0.054)	(0.075)
	–	[0.28]	[0.99]	[0.99]	[0.99]	[0.99]
Control mean	0.00	3.11	3.04	2.84	2.45	2.47
H_0: $PC/LA = PC = LA$	0.017	0.076	0.446	0.142	0.016	0.442
H_0: $PC/LA = PC$	0.054	0.025	0.235	0.252	0.881	0.310
H_0: $PC/LA = PC + LA$	0.003	0.004	0.126	0.095	0.097	0.175
B: After the PC Intervention						
Any PC Intervention	-0.11	-0.12	-0.086	-0.100	-0.021	-0.16*
	(0.066)	(0.075)	(0.073)	(0.076)	(0.086)	(0.092)
	–	[0.35]	[0.35]	[0.35]	[0.43]	[0.35]
Any Intervention	-0.059	-0.071	-0.041	-0.075	-0.0037	-0.059
	(0.060)	(0.066)	(0.066)	(0.069)	(0.077)	(0.083)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]
Control mean	0.00	3.44	3.45	3.41	2.90	2.92
H_0: $PC/LA = PC = LA$	0.251	0.234	0.342	0.637	0.833	0.047
H_0: $PC/LA = PC$	0.931	0.624	0.899	0.573	0.726	0.632
H_0: $PC/LA = PC + LA$	0.883	0.797	0.695	0.522	0.660	0.306
Observations	3473	3473	3473	3473	3473	3473

Note: The table reports AIT effects following Equation (1). The "during" period in Panel A includes Rounds 2-3 and the "after" period in Panel B includes Rounds 4-5. "During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent, the baseline dependent variable, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. Outcomes are based on the Kobau et al. (2010) Satisfaction with Life Scale. The Subjective Wellbeing Index in Column 1 is the first principal component of the outcomes in Columns 2-6. We adjust for multiple inference across the component outcomes in Columns 2-6 and report Benjamini et al. (2006) sharpened q-values in brackets. Stars indicate statistical significance according to unadjusted p-values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

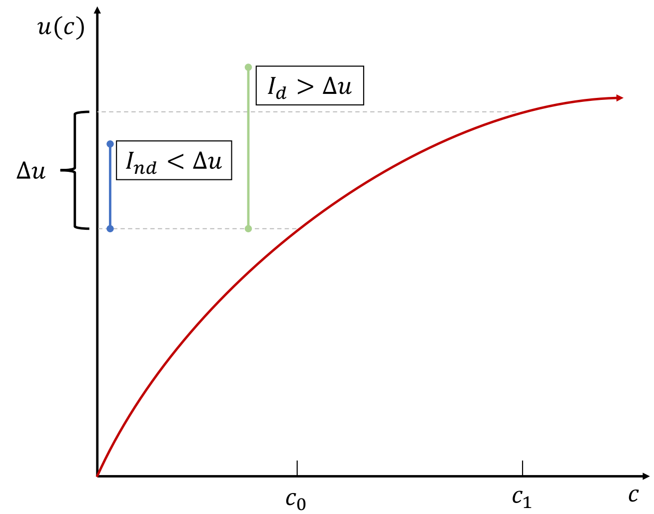
Table 12: Impacts on Participation in Household Decisions

	Number of Decisions	Work Decision Alone	Work Decision With Others	Savings Decision Alone	Savings Decision With Others
	(1)	(2)	(3)	(4)	(5)
A: During the PC Intervention					
Any PC Intervention	-0.0056	-0.00038	0.0064	-0.047*	0.014
	(0.049)	(0.030)	(0.032)	(0.027)	(0.032)
	–	[0.99]	[0.99]	[0.54]	[0.99]
Any Intervention	-0.0038	0.012	-0.0086	-0.039	0.0074
	(0.044)	(0.027)	(0.029)	(0.025)	(0.029)
	–	[0.99]	[0.99]	[0.86]	[0.99]
Control mean	1.49	0.36	0.40	0.32	0.41
H_0: $PC/LA = PC = LA$	0.52	0.39	0.55	0.47	0.84
H_0: $PC/LA = PC$	0.26	0.31	0.88	0.32	0.71
H_0: $PC/LA = PC + LA$	0.36	0.89	0.61	0.22	0.86
B: After the PC Intervention					
Any PC Intervention	0.042	-0.048	0.059*	-0.036	0.051
	(0.060)	(0.031)	(0.031)	(0.028)	(0.031)
	–	[0.20]	[0.20]	[0.20]	[0.20]
Any Intervention	0.00025	-0.035	0.025	-0.038	0.027
	(0.054)	(0.028)	(0.027)	(0.026)	(0.028)
	–	[0.57]	[0.57]	[0.57]	[0.57]
Control mean	1.21	0.37	0.26	0.29	0.29
H_0: $PC/LA = PC = LA$	0.24	0.59	0.02	0.78	0.08
H_0: $PC/LA = PC$	0.56	0.76	0.35	0.48	0.11
H_0: $PC/LA = PC + LA$	0.81	0.67	0.89	0.20	0.33
Observations	3476	3476	3476	3476	3476

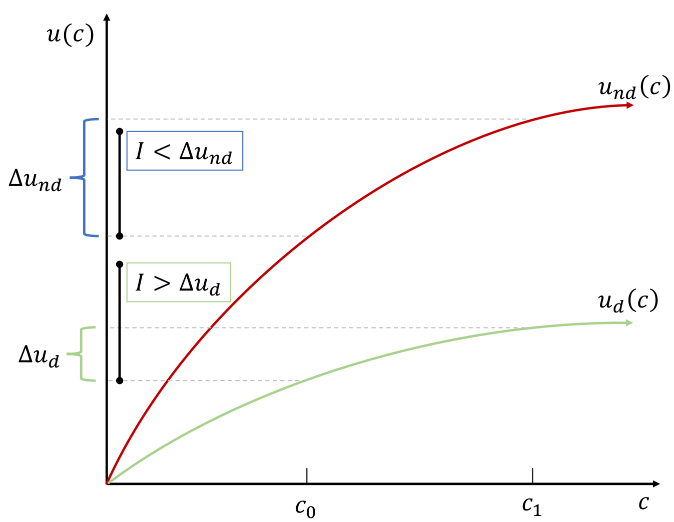
Note: The table reports AIT effects following Equation (1). The "during" period in Panel A includes Rounds 2-3 and the "after" period in Panel B includes Rounds 4-5. "During" and "after" estimates are based on a common regression. All regressions control for the age and gender of the respondent, the baseline dependent variable, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. Column 1 measures the number of household decisions (across financial and employment decisions) that the respondent participates in. Columns 2 and 3 indicate whether the respondent makes household work decisions alone or with others in the household. Columns 4 and 5 indicate whether the respondent makes household savings decisions alone or with others in the household. We adjust for multiple inference across the component outcomes in Columns 2-5 and report Benjamini et al. (2006) sharpened q-values in brackets. Stars indicate statistical significance according to unadjusted p-values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.



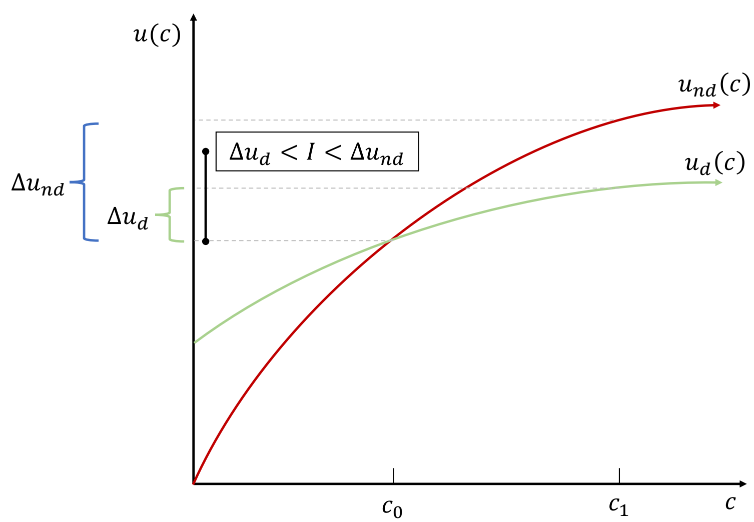
(a) Productivity Pathway



(b) Action Pathway: Indecisiveness



(c) Action Pathway: Anhedonia



(d) Action Pathway: Pessimism

Figure 1: Four Pathways Through Which Depression May Reduce Consumption

Note: The figure shows four pathways through which depression may reduce consumption. d indicates the depressed state, nd indicates the non-depressed state, I is the fixed cost of taking action, and Δu is the utility gain from taking action, $\Delta u \equiv u(c_1) - u(c_0)$. In Panel (a), depression reduces labor supply and productivity, which reduces income and shifts consumption from c_{nd} to c_d. In Panels (b)-(d), someone with consumption c_0 undertakes an action to increase consumption to c_1 if $\Delta u > I$. Panel (b) shows that depression may discourage action by raising I, if $I_d > \Delta u > I_{nd}$. Panel (c) shows that anhedonia may discourage action by flattening utility if $\Delta u_d < I < \Delta u_{nd}$. In Panel (c), the green curve is the *actual* utility with depression. Panel (d) shows that pessimism may discourage action by reducing the perceived benefit of taking action if $\Delta u_d < I < \Delta u_{nd}$. In Panel (d), the green curve is the *perceived* utility with depression.

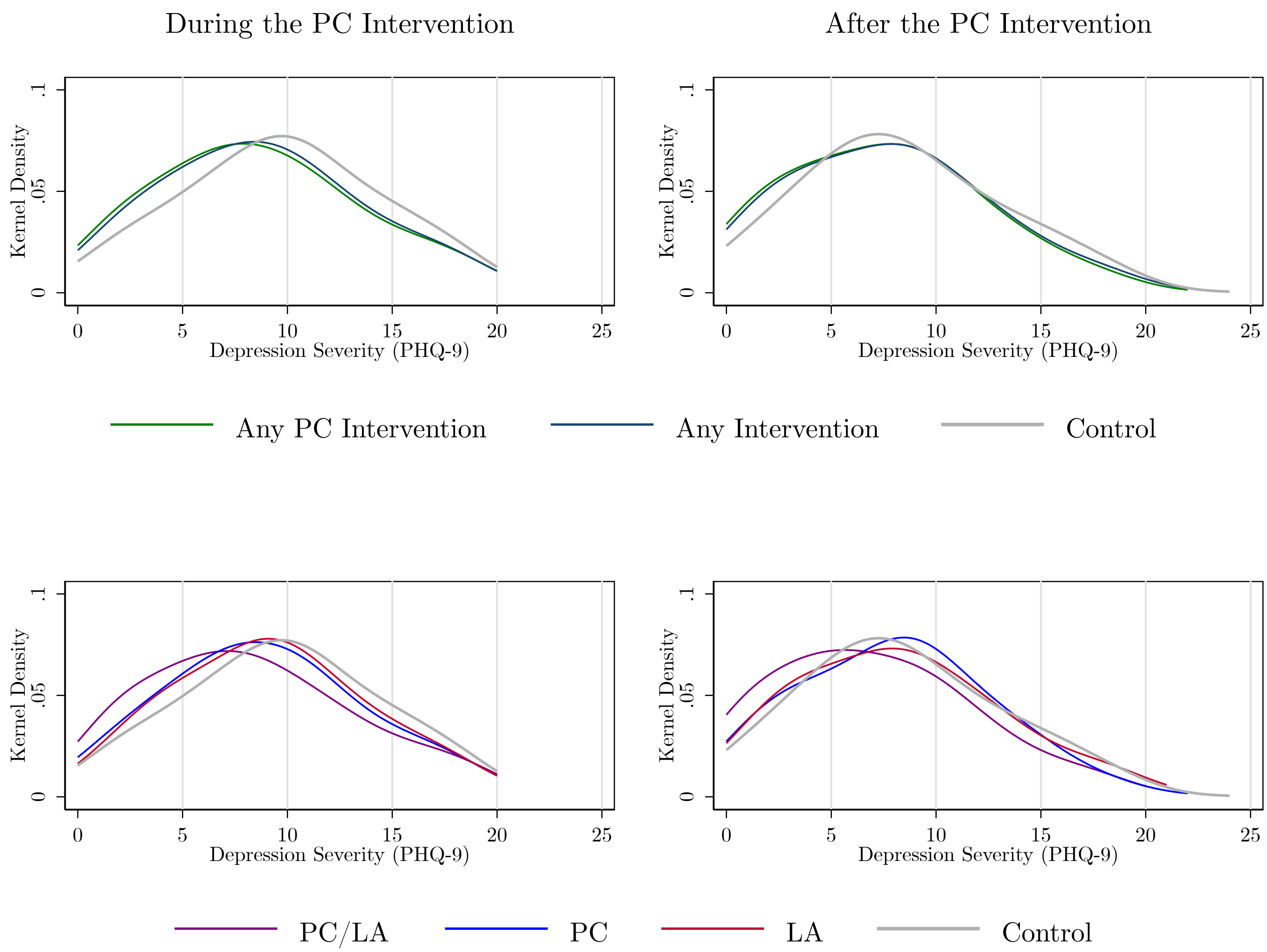


Figure 2: Impacts on Depression Severity

Note: The figure shows the density of PHQ-9 scores by intervention arm during the PC intervention (left panels) and after the PC intervention (right panels). The top panels pool "any PC intervention" (PC or PC/LA) or "any intervention" (PC, LA, or PC/LA). The bottom panels distinguish between the four intervention arms.

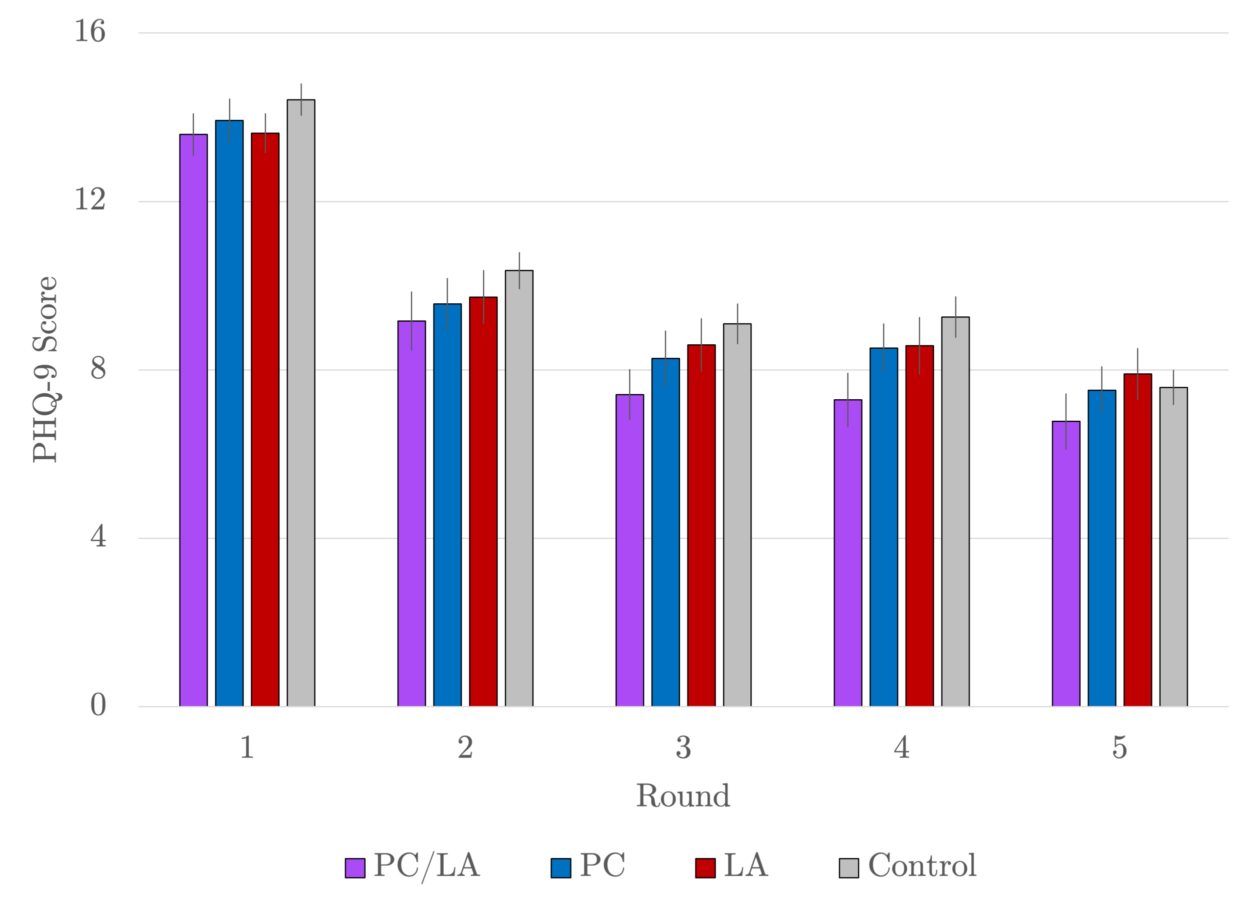


Figure 3: PHQ-9 Scores by Round and Intervention Arm

Note: The figure shows average PHQ-9 scores by survey round for the four intervention arms. Error bars show 90 percent confidence intervals based on village-clustered standard errors.

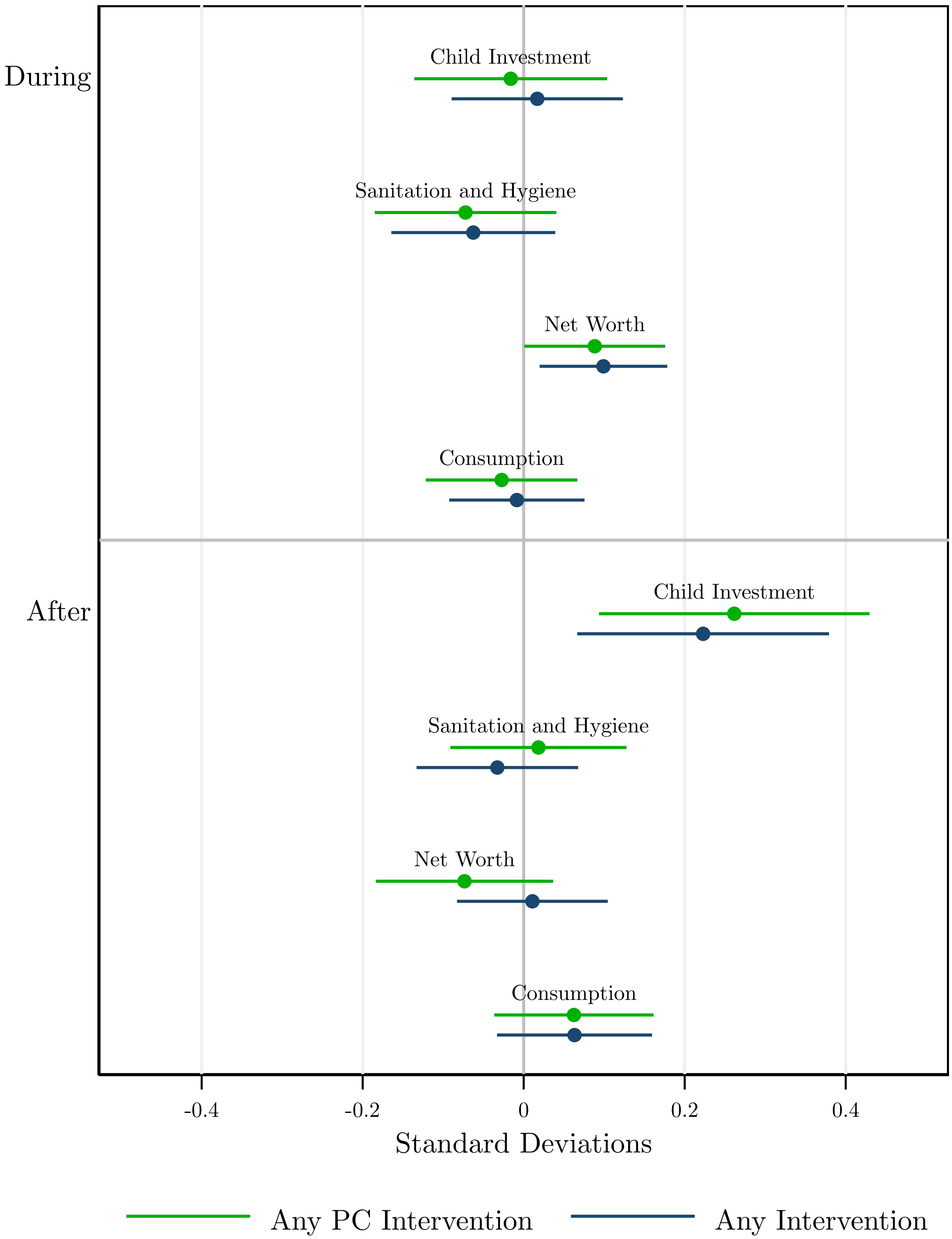


Figure 4: Standardized Impacts on Socioeconomic Outcomes

Note: The figure shows standardized impacts and 90 percent confidence intervals for socioeconomic indices, as explained in the text. The top panel shows impacts during the PC intervention and the bottom panel shows impacts after the PC intervention.

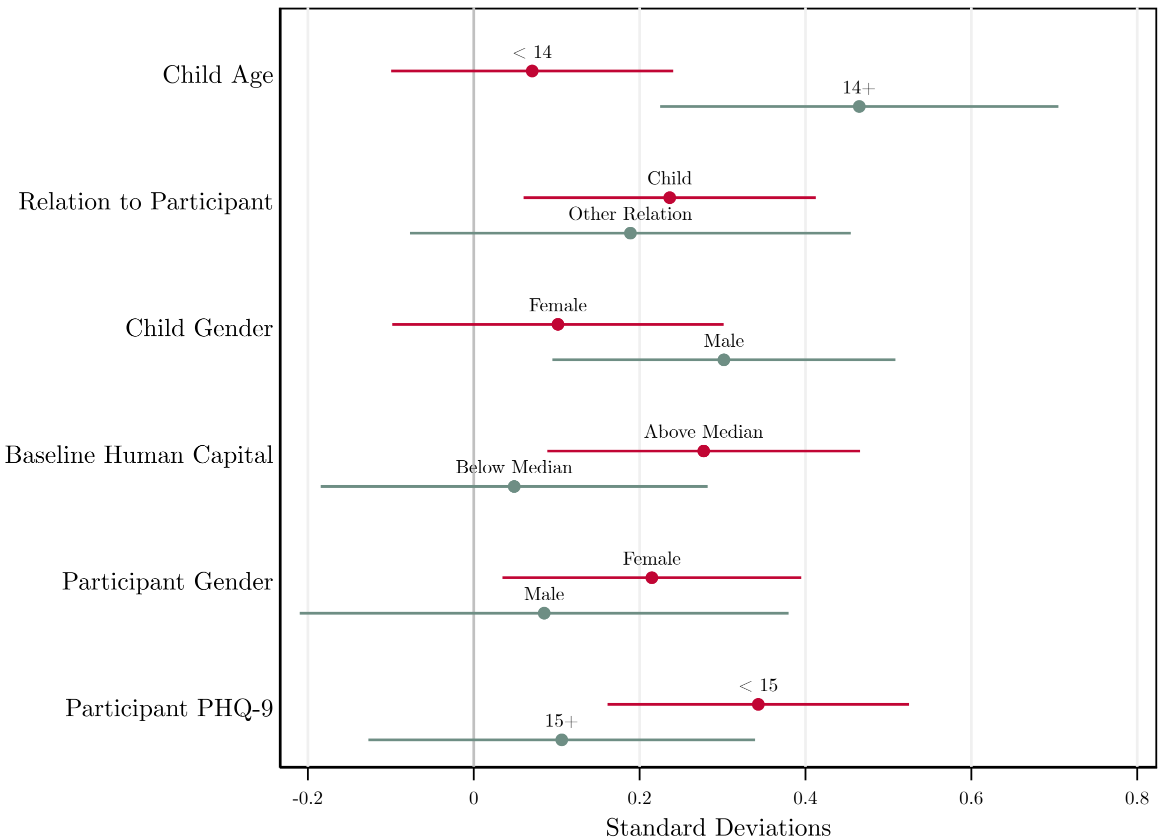


Figure 5: Heterogeneous Impacts on Child Human Capital Investment in Round 4

Note: The figure shows impacts by subgroup on the child human capital index in Round 4. Estimates are based on child-level regressions on "any PC intervention" that follow Equation (1) and weight by the inverse number of children in the household for comparability with Table 4. Error bars indicate 90 percent confidence intervals. We examine heterogeneity according to child age, relation to the study participant, child gender, participant gender, baseline participant PHQ-9 score, and baseline child human capital investment. We divide at the median for child age (14), baseline participant PHQ-9 score (15), and baseline child human capital investment (0.18 SD).

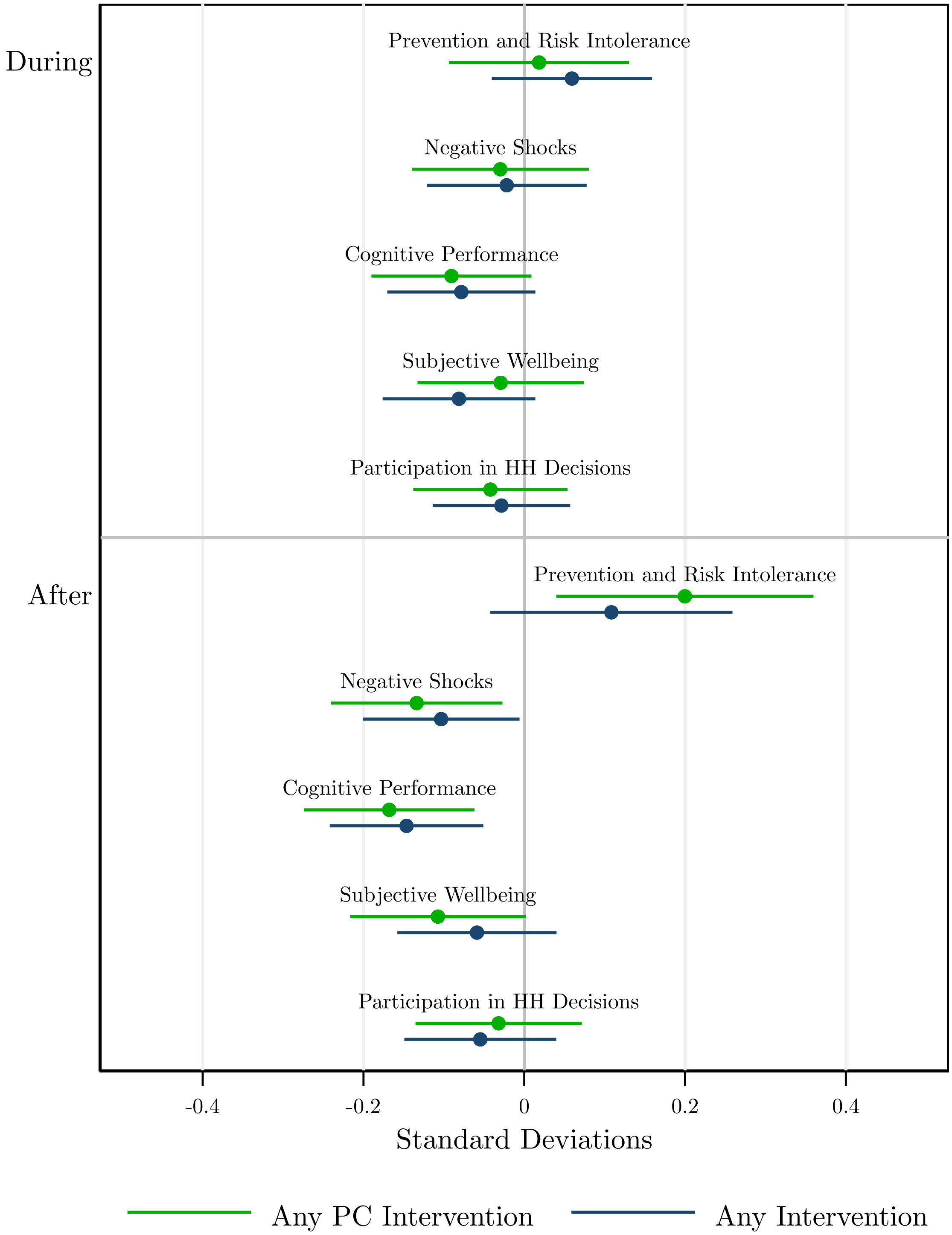


Figure 6: Standardized Impacts on Possible Mechanisms

Note: The figure shows standardized impacts and 90 percent confidence intervals for potential mechanisms through which depression treatment may improve socioeconomic outcomes, as explained in the text. The top panel shows impacts during the PC intervention and the bottom panel shows impacts after the PC intervention.

A Appendix: For Online Publication

A.1 Depression Prevalence and Correlates in the Community

The global prevalence of major depressive disorder (MDD) is around 5 percent (Ferrari et al. 2013). A much larger fraction of people have minor depression, which also impacts quality of life and is a leading risk factor for developing more severe illness (Cuijpers et al. 2004). Depression is higher for women (Piccinelli and Wilkinson 2000) and people with lower socioeconomic status (Sareen et al. 2011).

Although these general patterns are clear, the prevalence of depression and the association between depression and economic circumstances may vary across settings. To gauge the impact of depression in the study context, we measured depression symptoms in a representative sample of adults in Madhugiri District, Karnataka, which is adjacent to the study area and has similar demographic characteristics.[24] A comparison to the 2011 Census of India shows that our sample is representative of the caste, gender, and religious composition of Madhugiri. Estimates in this section are weighted to match the gender, religion, caste, and literacy composition of Madhugiri, although this step does not alter any results.

Figure A1 illustrates the main findings of the depression prevalence survey. The top panel shows the cumulative distribution function of PHQ-9 scores. 76.3 percent of respondents had scores below 5, indicating no depression, 14.5 percent had scores of 5-9, indicating mild depression, and 9.2 had scores of 10 or more, indicating moderate or severe depression. The PHQ-9 threshold for moderate depression corresponds loosely with an MDD diagnosis, although the PHQ-9 scale is not a diagnostic instrument. These findings suggest that depression is more prevalent in this setting than elsewhere in the world. Madhugiri is a poor area, and the elevated prevalence of depression in our sample suggests that poverty may contribute to depression. To investigate further, we created a socioeconomic status (SES) index by computing the first principal component of caste, literacy, education, savings, and home size. The bottom panel of Figure A1 documents a strong negative correlation between SES and depression severity. The figure shows a monotonic decline in average PHQ-9 scores as SES increases. People in the bottom quartile of the SES distribution have average PHQ-9 scores of 4.55 while those in the top quartile of the SES distribution have scores of 2.00 ($p < 0.001$ for this comparison). Table A1 shows how socioeconomic and demographic variables correlate with depression in the community. Age, female gender, low literacy and education, and recent exposure to negative shocks are positively correlated with depression, which aligns with existing evidence (Gilman et al. 2002).

A.2 Ethics and IRB Oversight

This appendix describes the ethical considerations for this study. This study received approval from multiple IRBs in India and the United States. The Institutional Ethical Commit-

[24] We randomly chose 120 villages and sampled a number of household per village that was proportional to the village's population in the 2011 census. Within each household, we attempted to survey up to two adults. Surveyors made up to three attempts over several weeks to reach each respondent and attempted to measure depression consistently with the intervention study.

tee of the Shridevi Institute of Medical Sciences and Research Hospital in Tumkur, Karnataka provided primary oversight of the PC intervention. We also received IRB approval for the full study, including the interventions and data collection, from the University of Chicago, the University of Michigan, the University of Southern California, the University of Texas at Austin, and the Institute for Financial Management and Research (IFMR), which led the data collection.

The PC intervention facilitated the provision of mental health care that was otherwise available in the community. Each taluk operates a public hospital with weekly psychiatric office hours for drop-in treatment. SSRIs are also available for free through these consultations. In practice, access may be difficult for many people because hours are limited and patients must arrange transportation to the hospital.

The IRB protocol for this study delineated practices to ensure the safety and protection of study participants. Subjects gave written informed consent before participating in the initial screening to identify people with depression symptoms who were eligible for the study. Eligible participants provided consent again before joining the study and completing the Round 1 survey. Informed consent scripts were customized to each intervention arm. When seeking consent for screening or intervention participation, surveyors always informed subjects that they could obtain free health care from the taluk hospital during the weekly clinics.

Staff monitored the wellbeing of all study participants throughout the study. Subjects were ineligible to join the study if they had PHQ-9 scores greater than 20, indicating severe depression. According to the protocol, anyone with a PHQ-9 score of 21 or more would be referred for immediate treatment for free at the Shridevi Hospital. GASS personnel also monitored all study participants on a monthly basis throughout the PC intervention. Anyone whose symptoms worsened into severe depression would be referred for immediate treatment for free at Shridevi Hospital. In practice, we did not encounter anyone with a PHQ-9 score greater than 20 during screening. One individual developed severe depression in Round 4 and three individuals developed severe depression in Round 5.

This study evaluates the socioeconomic impact of pharmacotherapy using SSRIs. Psychiatrists worked with patients to establish individualized courses of treatment. The research team did not play a role in determining courses of treatment. Participants with depression received escitalopram, fluoxetine, paroxetine, or setraline, which are off-patent SSRIs, based on the determinations of psychiatrists. These FDA-approved medications have been widely used since 1988 to treat depression (Hillhouse and Porter 2015). Side effects for these drugs include nausea, nervousness, dizziness, reduced sexual desire, drowsiness, insomnia, weight gain or loss, headache, dry mouth, vomiting, and diarrhea. Reduced sexual desire, weight gain, and sleep disturbance are the most common side effects. However, side effects are generally mild, and can usually be addressed by changing drugs or adjusting the dosage (Ferguson 2001). In practice, 12 percent of PC compliers ($n = 15$) reported experiencing any side effects after the intervention.

A.3 Selection

We define compliance with the PC intervention as attending at least one meeting with a psychiatrist and compliance with the LA intervention as attending a livelihoods workshop or obtaining a job or other livelihoods opportunity from the NGO. We investigate differences between compliers and non-compliers along five dimensions: age, gender, mental health, SES, and economic circumstances. For mental health, we compute the first principal component of the baseline PHQ-9, the GAD-7 anxiety scale, prior experiences of depression, and health and happiness as a child (which are risk factors for depression). For SES, we compute the first principal component of baseline literacy, education, caste, earnings, savings, and house size. For economic circumstances, we compute the first principal component of recent negative shocks, net worth, and consumption.

In Table A2, Columns 1-3 show the differences between compliers and non-compliers in each intervention arm. Compliers and non-compliers do not differ across most characteristics, with the exception of PC compliers, who are more likely to be female than PC non-compliers, and LA compliers, who have better baseline mental health than LA non-compliers. Columns 4 and 5 test whether these compliance differentials vary significantly across PC/LA, PC, and LA. We find no significant differences in compliance selection across PC/LA and PC. This finding suggests that the stronger mental health impact of PC/LA does not arise through a difference in the types of participants who received the PC intervention. The comparison of PC/LA and LA shows that LA compliance is more strongly associated with mental health than PC/LA compliance.

A.4 Mental Health Impacts Compared to the Literature

To compare the impact of PC/LA to estimates in the literature, we note that most medical studies of depression treatment occur in settings with very high compliance. Therefore, for a like-to-like comparison, we estimate the average treatment effects on the treated (ATT) by dividing the AIT estimates in Table 2 by the probability of PC compliance (43 percent for PC/LA participants).[25] According to the ATT estimate, PC/LA reduces depression symptoms by 0.53 SD in the "during" period and 0.46 SD in the "after" period.

In a comprehensive review of over 140 studies of depression treatment, Gartlehner et al. (2017) report that pharmacotherapy with SSRIs reduces depression severity by 0.35 SD (95% C.I. 0.31 − 0.38 SD) and that cognitive behavioral therapy (CBT) reduces severity by 0.22 SD (95% C.I. 0.02 − 0.42 SD). Since most trials measure impacts over just a few months, these effects are most comparable to our "during" estimates. However, most mental health trials are conducted in developed countries (Patel et al. 2007), and we are not aware of a meta-analysis of pharmacotherapy in poor countries. Our estimates are similar to the

[25]This approach assumes that assignment to PC/LA improves the mental health of compliers only. To be conservative, we define the ATT denominator according to PC compliance, which is 43 percent, rather than joint compliance with PC and LA, which is 31 percent. Since the impacts of PC and PC/LA are not significantly different in the "during" period (Table 2, Column 1), we cannot rule out that PC alone is responsible for mental health improvements during this period. If participation in both PC and LA is necessary to achieve the impacts associated with PC/LA, then the ATT estimate for PC/LA would be 0.77 SD in the "during" period and 0.68 SD in the "after" period.

average impacts of *psychotherapy* in low-income and middle-income countries of 0.46 SD (95% C.I. .33 – 0.59 SD) in the meta-analysis by Singla et al. (2017). Studies of the long-term impacts of depression treatment in developing countries are even more scarce. While we are not aware of comparable meta-analyses, four individual studies report heterogeneous results. In two studies set in Goa, India, Patel et al. (2003) find no effects of pharmacotherapy or psychotherapy over 12 months and Haushofer et al. (2020) find no effects of psychotherapy over 12 months. However, a third study in Goa finds an impact of psychotherapy of 0.32 SD over 12 months (Weobong et al. 2017). Rahman et al. (2008) find that psychotherapy reduces perinatal depression by 0.82 SD after one year in Pakistan.

A.5 Intervention Costs

Table A3 shows the implementation costs for the study interventions. Panel A describes the actual costs, Panel B disaggregates intervention components, and Panel C estimates costs under several hypothetical scenarios. Costs were incurred in Indian rupees from 2017-2019. To convert figures into 2017 US dollars, we adjust for inflation using the Indian consumer price index and convert to dollars using the January 2017 exchange rate of 67.4 rupees per dollar.

Panel A reports that the cost per person for PC is \$221 while the cost of PC/LA is \$232. These costs are similar because the LA intervention is inexpensive (\$11 per person). A back-of-the-envelope calculation to compare the relative cost-effectiveness of the PC and PC/LA arms computes the cost of improving mental health by 0.1SD on the PHQ9 scale for each month for which we have data. This method accounts for the larger and more durable mental health impacts in the PC/LA intervention. We consider the "during" period, which lasts 8 months, and the "after" period, which lasts 18 months. Over the 26-month time horizon in our data, Table A3 indicates that PC/LA costs \$8.90 per month per person while PC costs \$8.50 per month per person. According to the PC/LA estimates in Table 2 (-0.24 SD in the "during" period and -0.21 SD in the "after" period), the cost to reduce the PHQ-9 by 0.1 SD per person per month is $8.9/2.4 =$ \$3.71 in the "during" period and $8.9/2.1 =$ \$4.24 in the "after" period. According to Table 2, PC alone reduces depression symptoms by 0.11 SD in the "during" period and by 0.02 SD in the "after" period (estimates that are not statistically significant). Therefore, the cost to reduce the PHQ-9 by 0.1 SD per person per month is $8.5/1.1 =$ \$7.72 in the "during" period and $8.5/0.2 =$ \$42.50 in the "after" period. In sum, PC/LA is more cost effective in terms of improving mental health because it costs only slightly more than PC, but it has larger and more persistent effects.

The intervention would be cheaper under alternative implementation scenarios. Since recruitment is a substantial cost (\$43 per participant), interventions in clinical settings could reduce or eliminate this cost by treating people who have already been diagnosed with depression, reducing the cost of PC/LA by 18 percent (\$191 versus \$232). Alternatively, an intervention might reduce costs by asking psychiatrists to donate their time. Eliminating psychiatrist salaries would reduce the cost of PC/LA by 17 percent (\$192 versus \$232). Many pharmacotherapy interventions have shorter durations than the eight-month PC intervention. Reducing the duration of the PC intervention to four months would reduce the cost of PC/LA by 38 percent (\$144 versus 232).

A.6 Heterogeneous Impacts on Mental Health

In this section, we assess possible heterogeneity in the mental health impact of the interventions. We modify Equation (1) to interact any intervention and any PC intervention with indicators for these subgroups in order to obtain subgroup-specific estimates. Figure A5 shows impacts on the standardized PHQ-9 score along these margins. The figure plots the difference in the standardized treatment effect between groups and shows 90 percent confidence intervals. A negative and significant effect means that the first listed group has a larger reduction in depression symptoms. We do not find statistically significant differences between subgroup-specific impacts in most dimensions, including gender, SES, baseline depression severity, and exposure to recent negative shocks. The figure suggests that participants above the median age of 36, in worse physical health at baseline, and who experienced above median childhood shocks have larger mental health benefits.

A.7 Impact on Status Within the Household

This appendix examines impacts on proxies for status within the household. In Round 5, we collected data on physical autonomy and participation in communal meals to proxy for status (Palriwala 1993). Physical autonomy measures include whether the respondent has left the house alone in the past seven days and whether the respondent requires permission to leave the house. Communal meal variables include whether the respondent consumes meals at home, at different times than others, alone, or while cooking, and well as whether he or she eats food leftover by other family members. We aggregate these variables into a status index by computing the first principal component of these variables and standardizing this measure.

Estimates for intra-household status appear in Table A4. Since these data are only available in Round 5, we cannot control for the baseline dependent variable or show estimates for the "during" period. The table shows no statistically significant impacts on status within the household.

Table A1: Healthy and Depressed Adults in the Community Compared to the Intervention Sample

	Community Sample		Intervention	Significance	
	Healthy	Depressed	Sample	(1) vs. (2)	(2) vs. (3)
	(1)	(2)	(3)	(4)	(5)
PHQ-9 depression scale	1.29	11.29	13.99	***	***
Age	34.5	37.0	35.3	***	***
Female	0.48	0.61	0.86	***	***
Scheduled caste/tribe	0.24	0.26	0.64		***
Schooling (years)	7.7	4.7	5.0	***	
Literacy (1-3)	2.3	1.8	1.9	***	
Any household savings	0.52	0.47	0.30		***
Bedrooms (number)	1.5	1.5	1.5		
Negative life event scale	39	54	95	***	***
Observations	1249	256	1000	–	–

Note: the intervention sample includes baseline observations for all trial participants, while the community sample is a representative sample of adults (aged 18-50) from the adjacent taluk (Madhugiri). Estimates in Columns 1 and 2 are weighted to match the available demographic characteristics (percent literate, Hindu, Muslim, and scheduled caste/tribe) of Madhugiri according to the 2011 Census of India. The healthy subsample in Column 1 includes community respondents for whom PHQ-9 < 7, which matches the trial eligibility threshold. The depressed subsample in Column 2 includes community respondents for whom PHQ-9 ≥ 7. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A2: Selection into Intervention Compliance

	Compliers − Non-Compliers			P-Value	
	PC/LA	PC	LA	PC/LA − PC	PC/LA − LA
	(1)	(2)	(3)	(4)	(5)
Age	-0.667	-0.499	-1.839	0.92	0.52
	(1.318)	(1.150)	(1.186)		
Female	-0.0338	-0.130**	0.0218	0.24	0.51
	(0.0646)	(0.0505)	(0.0552)		
Mental Health Index	-0.262	0.0825	0.385***	0.12	0.00***
	(0.179)	(0.139)	(0.144)		
SES Index	0.0345	0.224	0.0968	0.41	0.79
	(0.180)	(0.146)	(0.152)		
Economic Circumstances Index	0.251	0.159	-0.135	0.69	0.11
	(0.173)	(0.136)	(0.169)		
Observations	186	202	201	589	589

Note: Columns 1-3 show the differences in characteristics between compliers and non-compliers for each intervention arm. PC compliance is defined as attending at least psychiatric consultation. LA compliance is defined as attending at least one livelihoods workshop or obtaining employment (or another livelihoods opportunity) from the NGO. The mental health index is the standardized first principal component of PHQ-9, GAD-7 anxiety scale, prior experiences of depression, and health and happiness as a child, all of which are measured at baseline. The SES Index is the standardized first principal component of baseline literacy, education, caste, earnings, savings, and house size. The Economic Circumstances Index is the the first principal component of recent negative life events, net worth, and consumption. Standard errors and p-values are based on univariate regressions of the characteristics on a compliance indicator. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A3: Intervention Costs Per Participant Under Alternative Scenarios

	Cost (USD)	Unit
	(1)	(2)
A: Actual Costs		
PC/LA	232	per person
PC	221	per person
B: Intervention Components		
Recruitment	43	per person
Home Visits	2	per person-month
Medicine and transportation	15	per person-month
Psychiatrist salaries	5	per person-month
Livelihoods services	11	per person
C: Alternative Hypothetical Scenarios		
PC/LA with psychiatrists working for free	192	per person
PC/LA w/o recruitment costs	191	per person
4-month PC/LA intervention	144	per person
4-month PC/LA intervention w/o recruitment costs	102	per person

Note: Expenses were incurred in 2019 Indian rupees. The table converts these values to 2017 US dollars using the Indian consumer price index and the January 2017 exchange rate of 67.4 rupees per dollar.

Table A4: Impact on Status Within the Household

	Status Index	Left House Alone	Leaves Without Permission	Number of Lunches and Dinners in Past Seven Days				
				At Home	Diff. Times	Alone	Cooking	Leftovers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Any PC Intervention	-0.074	-0.034	-0.020	0.19	-0.33	-0.40	-0.034	0.12
	(0.088)	(0.039)	(0.058)	(0.28)	(0.31)	(0.28)	(0.081)	(0.091)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]
Any Intervention	-0.016	-0.0044	-0.026	-0.00056	-0.31	-0.42	0.0033	0.10
	(0.076)	(0.034)	(0.051)	(0.26)	(0.28)	(0.26)	(0.076)	(0.079)
	–	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]	[0.99]
Control mean	0	0.73	0.36	11.47	3.34	3.42	0.28	0.37
H_0: $PC/LA = PC = LA$	0.256	0.168	0.900	0.379	0.794	0.422	0.695	0.744
H_0: $PC/LA = PC$	0.876	0.989	0.701	0.962	0.505	0.200	0.927	0.493
H_0: $PC/LA = PC + LA$	0.500	0.506	0.984	0.522	0.959	0.914	0.636	0.330
Observations	816	816	601	816	816	816	816	816

Note: The table reports AIT effects following Equation (1). Data are only available in Round 5. All regressions control for the age and gender of the respondent, and survey round indicators. "Any PC Intervention" includes the PC and PC/LA arms. "Any Intervention" includes the PC, LA, and PC/LA arms. The outcome in Column 2 is an indicator that the respondent has left home in the past seven days. The outcome in Column 3 is a categorical variable indicating how frequently the respondent needs permission to leave home (never, sometimes, always). The outcomes in Columns 4-8 are counts of the number of lunches and dinners in the past seven days. Column 4 indicates meals eaten at home, Column 5 indicates meals eaten at different times from other family members, Column 6 indicates meals eaten alone, Column 7 indicates meals eaten while cooking, and Column 8 indicates meals consisting of leftover food. The Status Index in Column 1 is the standardized first principal component the outcomes in Columns 2-8. To construct the index, we reverse the sign in Columns 4-8 so that higher values of all components indicate greater autonomy. We adjust for multiple inference across the component outcomes in Columns 2-8 and report Benjamini et al. (2006) sharpened q-values in brackets. Stars indicate statistical significance according to unadjusted p-values: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A5: Heterogeneous Impacts on Child Human Capital Investment in Round 4

	Child Investment Index	Enrolled	Weekly Attendance Days	Weekly Homework Hours	Working
	(1)	(2)	(3)	(4)	(5)
A: Child Age					
5-13 years old	0.085	0.0042	-0.16	1.06	-0.016
	(0.10)	(0.033)	(0.25)	(0.79)	(0.031)
	[0.16]	[0.95]	[4.7]	[3.6]	[0.00]
14-18 years old	0.47***	0.14***	1.12***	0.65	-0.082**
	(0.15)	(0.042)	(0.30)	(0.93)	(0.038)
	[-0.19]	[0.80]	[3.9]	[4.4]	[0.14]
Young = Old (p-value)	0.01	0.00	0.00	0.68	0.07
B: Relation to Respondent					
Child	0.25**	0.064*	0.44*	0.64	-0.063*
	(0.11)	(0.034)	(0.23)	(0.73)	(0.033)
	[0.00]	[0.88]	[4.4]	[3.8]	[0.10]
Other Relation	0.19	0.014	-0.16	2.19	-0.046
	(0.16)	(0.051)	(0.44)	(1.33)	(0.060)
	[0.16]	[0.94]	[4.4]	[4.8]	[0.06]
Child = Other Rel. (p-value)	0.75	0.34	0.17	0.24	0.79
D: Child Gender					
Female	0.12	0.034	0.19	0.34	-0.061
	(0.12)	(0.033)	(0.29)	(0.82)	(0.041)
	[0.10]	[0.92]	[4.6]	[3.9]	[0.07]
Male	0.29**	0.057	0.43	0.98	-0.077*
	(0.13)	(0.041)	(0.27)	(0.94)	(0.042)
	[0.01]	[0.88]	[4.4]	[4.3]	[0.14]
Female = Male (p-value)	0.21	0.55	0.46	0.51	0.73

Note: The figure shows heterogeneous impacts on the child human capital index in Round 4. Estimates are based on child-level regressions on "any PC intervention" that follow Equation (1) and weight by the inverse number of children in the household for comparability with Table 4. Subgroup-specific control means appear in brackets. The child investment index (Column 1) is the standardized first principal component of the outcomes in Columns 2-5. Child labor enters the index negatively. In Column 5, "working" is only collected for children 12 or older and enters the index negatively. We examine heterogeneity according to child age, relation to the study participant, birth order, child gender, participant gender, baseline participant PHQ-9 score, and baseline child human capital investment. We divide at the median for child age (13), baseline participant PHQ-9 score (15), and baseline child human capital investment (0.18 SD). For birth order, we distinguish between first-born (or singleton) and subsequently-born children. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A6: Heterogeneous Impacts on Child Human Capital Investment in Round 4

	Child Investment Index	Enrolled	Weekly Attendance Days	Weekly Homework Hours	Working
	(1)	(2)	(3)	(4)	(5)
G: Baseline Child Investment Index					
Above Median	0.25**	0.063**	0.54*	0.68	-0.066*
	(0.12)	(0.032)	(0.30)	(1.00)	(0.038)
	[0.08]	[0.88]	[4.6]	[4.5]	[0.09]
Below Median	0.12	0.028	0.046	0.33	-0.066*
	(0.12)	(0.038)	(0.30)	(0.86)	(0.036)
	[0.05]	[0.92]	[4.5]	[3.7]	[0.12]
Low = High (p-value)	0.28	0.28	0.14	0.74	0.99
E: Participant Gender					
Female	0.22**	0.050	0.37	0.54	-0.083**
	(0.11)	(0.034)	(0.24)	(0.74)	(0.038)
	[0.01]	[0.89]	[4.3]	[4.0]	[0.10]
Male	0.11	0.020	-0.16	1.17	0.069
	(0.18)	(0.043)	(0.43)	(1.67)	(0.063)
	[0.05]	[0.88]	[4.6]	[3.6]	[0.05]
Female = Male (p-value)	0.56	0.51	0.25	0.70	0.02
F: Baseline Participant PHQ-9 Score					
Less than 15	0.35***	0.070**	0.58**	1.03	-0.088***
	(0.11)	(0.034)	(0.26)	(0.84)	(0.032)
	[-0.11]	[0.86]	[4.2]	[3.3]	[0.12]
15 or Higher	0.12	0.049	0.095	0.61	-0.033
	(0.14)	(0.045)	(0.30)	(0.93)	(0.048)
	[0.11]	[0.91]	[4.5]	[4.4]	[0.08]
Low = High (p-value)	0.13	0.65	0.16	0.70	0.27

Note: The figure shows heterogeneous impacts on the child human capital index in Round 4. Estimates are based on child-level regressions on "any PC intervention" that follow Equation (1) and weight by the inverse number of children in the household for comparability with Table 4. Subgroup-specific control means appear in brackets. The child investment index (Column 1) is the standardized first principal component of the outcomes in Columns 2-5. Child labor enters the index negatively. In Column 5, "working" is only collected for children 12 or older and enters the index negatively. We examine heterogeneity according to child age, relation to the study participant, birth order, child gender, participant gender, baseline participant PHQ-9 score, and baseline child human capital investment. We divide at the median for child age (13), baseline participant PHQ-9 score (15), and baseline child human capital investment (0.18 SD). For birth order, we distinguish between first-born (or singleton) and subsequently-born children. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

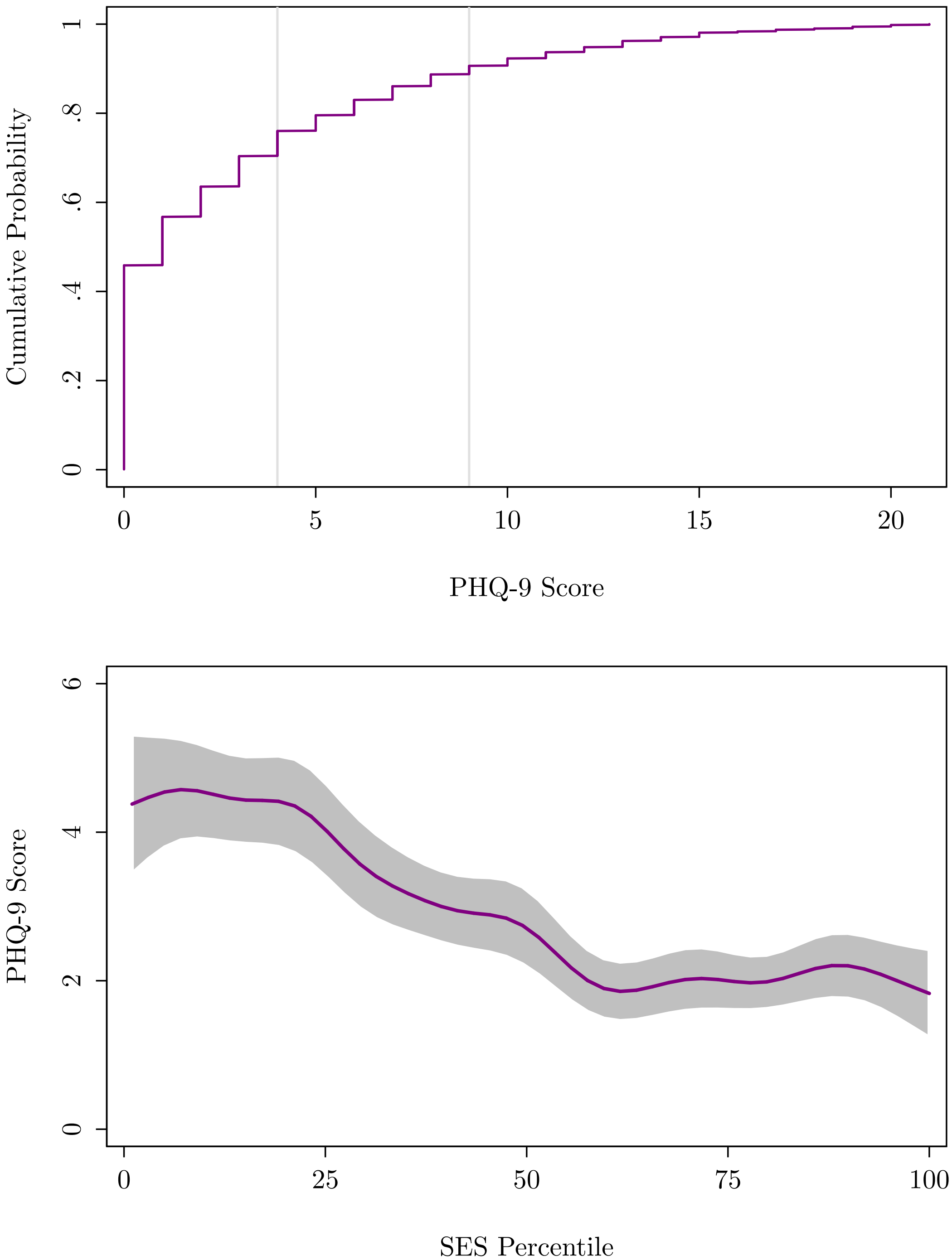


Figure A1: Community Depression Prevalence (Panel A) and Association with SES (Panel B)

Note: Data are from a representative sample of adults from Madhugiri District. Estimates are weighted to match the age, gender, religion, and caste distribution of the district in the 2011 Census of India. Panel A shows the cumulative density of PHQ-9 scores. Gray vertical bars indicate thresholds for mild and moderate depression. In Panel B, we construct an SES index according to the first principal component of caste, education, literacy, savings, and house size, which we convert into percentiles. The figure shows estimates from a locally-weighted polynomial regression of PHQ9 scores on the SES percentile.

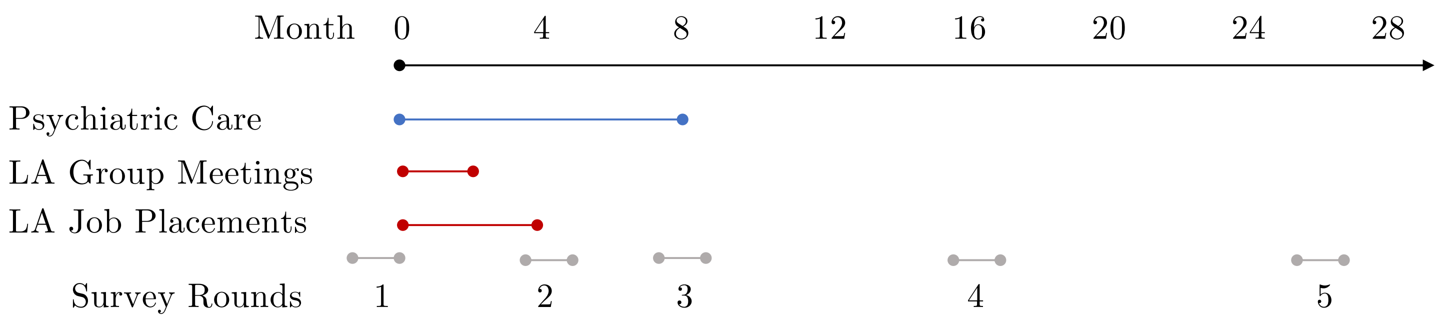


Figure A2: Study Timeline

Note: the figure shows the timing of the study components. PC components appear in red, LA components appear in blue, and survey rounds appear in gray.

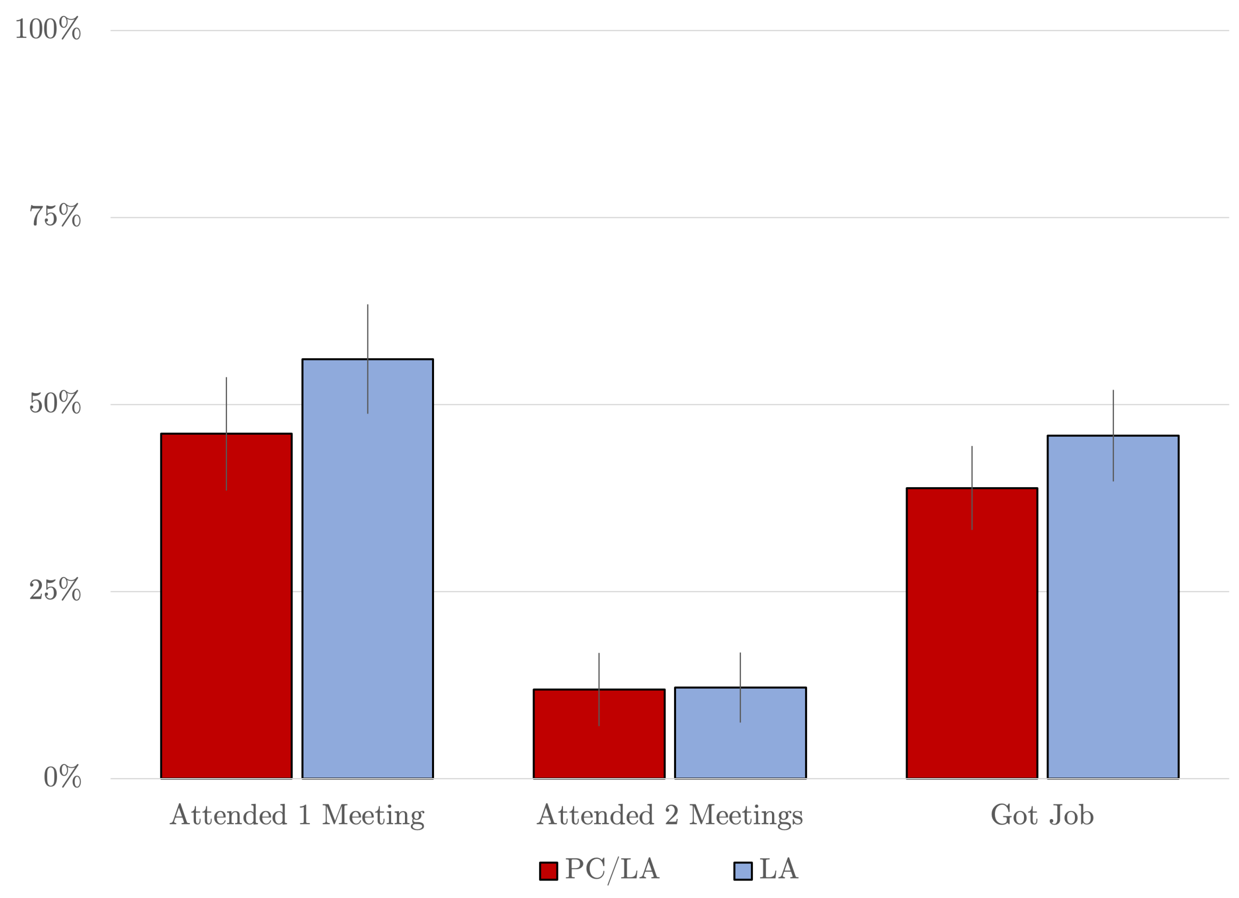


Figure A3: Participation in the LA Intervention

Note: the figure shows the percent of participants in the LA and PC/LA interventions who attended one meeting, attended two meetings, and who received a job or other livelihoods activity.

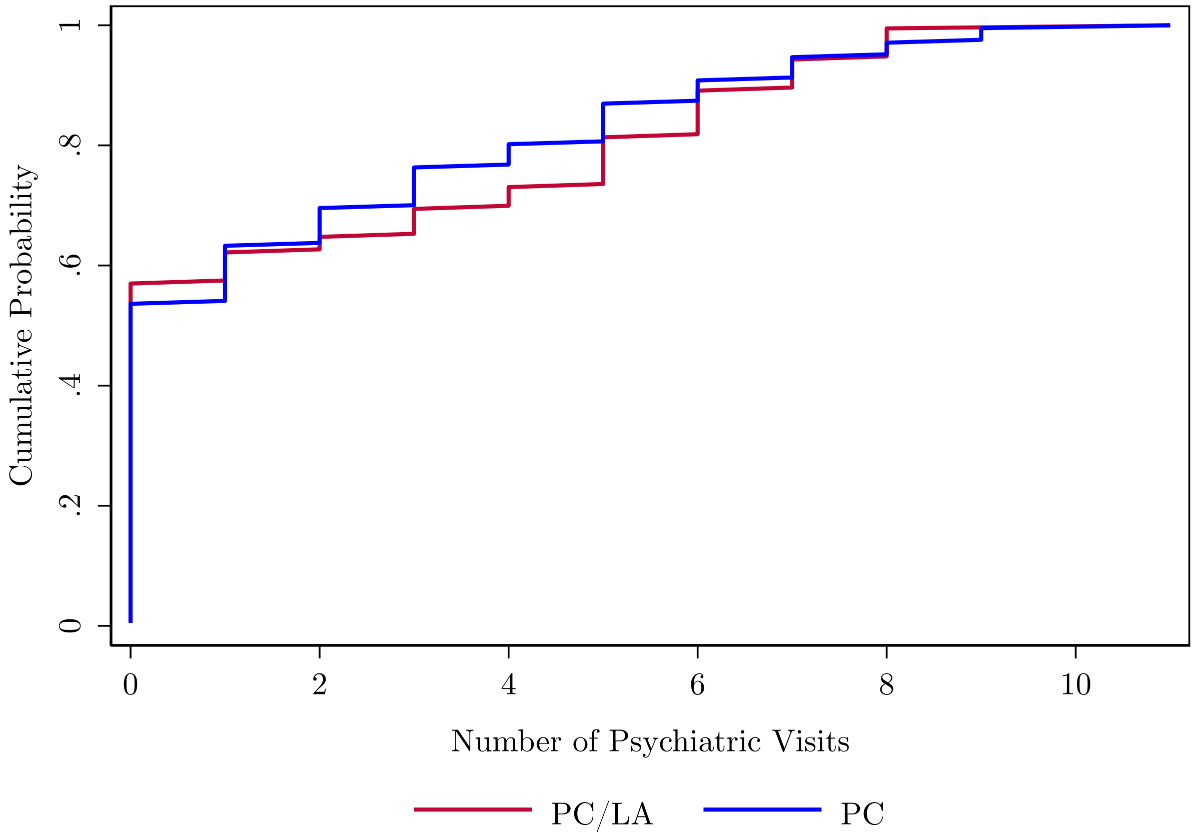


Figure A4: Participation in the PC Intervention

Note: the figure shows the cumulative density function for the number of psychiatric visits received by participants in the PC and PC/LA arms.

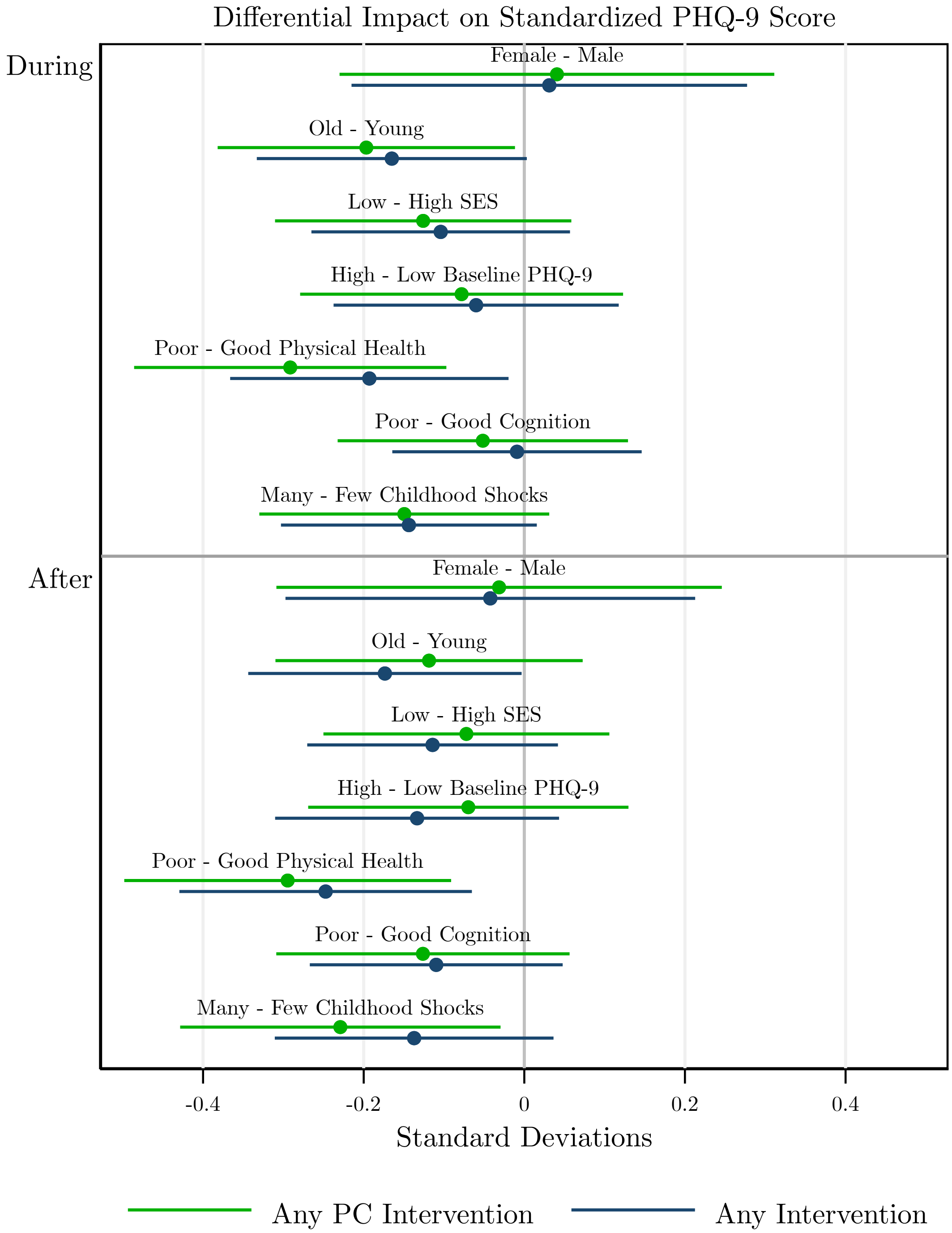


Figure A5: Heterogeneity in Impacts on Depression

Note: the figure follows Equation (1) and shows the difference in impacts between subgroups. A negative and significant effect means that the first listed group has a larger reduction in depression symptoms. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is the number. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. In each case (aside from gender), we divide the sample at the median.

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