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**Working Paper**

## The Gendered Crisis: Livelihoods and Mental Well-Being in India during COVID-19

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DISCUSSION PAPER SERIES

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# The Gendered Crisis: Livelihoods and Mental Well-Being in India during COVID-19

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## ABSTRACT

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# The Gendered Crisis: Livelihoods and Mental Well-Being in India during COVID-19

This paper studies the impact of the COVID-19 pandemic on the gendered dimensions of employment and mental health among urban informal-sector workers in India. First, we find that men's employment declined by 84 percentage points during pandemic relative to pre-pandemic employment, while their monthly earnings fell by 89 per cent relative to the baseline mean. In contrast, women did not experience any significant impact on employment during pandemic, as reported by their husbands. Second, we document very high levels of pandemic-induced mental stress, with wives reporting greater stress than husbands. Third, this gendered pattern in pandemic-induced mental stress is partly explained by men's employment losses, which affected wives more than husbands. In contrast, women staying employed during the pandemic is associated with worse mental health for them and their (unemployed) husbands. Fourth, pre-existing social networks are associated with higher mental stress for women relative to men, possibly due to the 'home-based' nature of women's networks.

**JEL Classification:** J16, J22, J23

**Keywords:** COVID-19, wage employment, mental health, social networks, gender, India

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# 1. Introduction

While the COVID-19 pandemic has ravaged most countries across the world, India has been one of the worst affected. With its 1.3 billion population, of which vast numbers are self-employed, informal sector workers and daily wage earners lacking access to social security measures, India faces significant policy challenges, both humanitarian as well as economic, in the wake of the COVID-19 crisis. During the first wave of the pandemic, India imposed one of the strictest national lockdowns in the world on March 24, 2020 to contain the spread of the virus<sup>1</sup>. Countless informal sector workers faced job and income losses, food shortages and required direct support in terms of cash and food. It has also become increasingly apparent that significant mental health concerns have arisen due to the COVID-19 crisis and subsequent lockdown, both due to economic uncertainty as well as social distancing measures imposed to control the spread of the pandemic, which has put pressure on the social fabric and feeling of community connectedness.

This paper provides evidence on the impact of the first wave of the COVID-19 pandemic in India on the livelihoods and mental health of urban, primarily informal sector workers, who constitute some of the most vulnerable segments of the Indian population in its overcrowded, urban centres. In particular, we focus on the gender differences in these impacts of the COVID-19 crisis. To this end, we use two rounds of survey data: a pre-pandemic survey conducted in May 2019 for over 1600 women and their husbands living in urban clusters of Delhi, and a follow-up phone survey during the pandemic around the peak of the COVID-19 national lockdown, in April and May 2020.

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<sup>1</sup> India ranked among the highest on the COVID-19 Stringency Index by Oxford COVID-19 Government Response Tracker (OxCGRT) (Hale et al, 2020).

Our main findings are as follows. First, men's employment was significantly more impacted than women's employment due to the COVID-19 shock. In particular, men's self-reported employment declined by 84 percentage points (pp) during the pandemic. This was primarily driven by wage and casual labourers who experienced a nearly 94 pp reduction in employment, followed by self-employed and salaried workers. Men's monthly earnings also declined by 89 percent relative to pre-pandemic mean earnings. In contrast, women (wives) did not experience any significant impact in employment, as reported by their husbands, during the pandemic.<sup>2</sup>

Second, we are the first to document very high levels of mental stress due to the pandemic among the urban poor in India, driven primarily by financial (93%) and health (85%) concerns. While this is true for both men and women, the latter report relatively greater mental stress. In particular, women report 0.23 standard deviations greater mental stress compared to men. The key aspects of women's stress appear to be anxiety and nervousness, followed by sleeplessness and health worries.

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<sup>2</sup> This result is in line with Desai, Deshmukh, and Pramanik (2021) who find that women are less likely to experience a decline in employment overall, but conditional on for-wage occupations, women experienced larger declines in employment in India. In contrast, our study focuses on households where women were mostly involved in childcare even pre-COVID-19, and often working from home.

Third, part of this gendered pattern in pandemic-induced mental stress may be explained by employment losses suffered by men during the pandemic, that appears to have affected wives more than husbands. Specifically, wives whose husbands lost their livelihood during the pandemic report 0.75 standard deviations greater mental stress, while the men themselves report 0.68 standard deviations higher mental stress. In contrast, women who continued to remain employed during the pandemic (but whose husbands were unemployed) report 0.22 *higher* mental stress compared to their unemployed counterparts. This may be indicative of the internalization by women of the “male breadwinner” gender norms, which were severely disrupted by the pandemic-induced employment losses suffered by men. It could also be picking up incidence of spousal domestic violence due to male backlash (Dhanaraj and Mahambare 2022; Macmillan and Gartner 1999; Luke and Munshi 2011).<sup>3</sup> Husbands of employed women also report 0.166 standard deviation greater mental stress, driven primarily by health worries. This could be picking up husbands’ concern about their wives’ exposure to the virus when at work. Further, we also find that wives’ continued employment during the pandemic is positively correlated with reported depression among (unemployed) men, consistent with internalization of “male breadwinner” norms among these men.

Fourth, we analyse the mediating role of social networks on mental health during the pandemic, by utilising rich data on pre-pandemic social connections. We find that social network size, as measured by number of (unique) friends, is associated with lower reported mental stress for men, but the opposite is true for women. In particular, we find that one additional social connection in men’s network is associated with 0.061 standard deviations lower mental stress. But this pattern

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<sup>3</sup> We are unable to directly test for this channel since we did not collect data on domestic violence in our pandemic survey.

is reversed for women, such that one additional connection in their social network is associated with 0.037 standard deviations *higher* mental stress. In other words, social networks appear to play a mitigating role for men's mental health, but an exacerbating role for women's mental health, in times of crisis.

We also find that this positive association between pre-pandemic network size and reported mental stress for women during pandemic appears to be entirely driven by the *home-bound* nature of their networks. While for men, having an additional "home-friend"<sup>4</sup> is associated with 0.088 standard deviations lower mental stress, the same is associated with an additional 0.035 standard deviation *higher* reported mental stress for women. In addition, women who owned mobile phones, and enjoyed greater phone interaction with their home-friends before the pandemic, report higher mental stress during pandemic, while the opposite holds for men. In contrast, "work-friends" are associated with lower reported mental stress for both men and women, although neither is statistically significant.

Our preferred interpretation of these findings is that, irrespective of the loss of connection with their social network due to pandemic-induced social distancing, women with larger home-bound networks experienced greater stress. This is consistent with the "stress-contagion" role rather than the "stress-buffering" role of social networks for women, but not men. The sociological literature suggests that this is likely due to increased pressures on women from their social networks (Berkman and Kawachi 2001). In our context, this could be driven by women's *home-bound* friends as opposed to *workplace* friends. One might expect the latter to provide some non-

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<sup>4</sup> As elaborated in Section 3a, *home-friends* comprised of friends based around home, including relatives and neighbours.

redundant information about jobs, while home-bound friends either cause contagion in stress levels or require more intensive caregiving by women, but not by men. It may also be due to the highly integrated nature of home-bound friends who may be spreading anxiety among each other. While we cannot ascribe causal interpretations to this analysis, it is interesting nevertheless to understand the correlates of the observed gender differences in mental well-being during the pandemic.

Our findings add to the emerging global literature on the devastating impact of the COVID-19 pandemic on economic well-being (Kesar, et al. 2020; Gupta and Kudv 2020; Bertrand, Krishnan and Schofield 2020; Deshpande 2020; Afridi, Mahajan and Sangwan 2021; World Bank 2020) as well as to the feminist discourse on the gendered impact of the crisis (Kabeer, Razavi and Rodgers 2021), including employment outcomes of vulnerable informal sector workers (Desai, Deshmukh, and Pramanik 2021; Seck et al. 2021; Ham 2021) and self-employed workers (Graeber et al. 2021; Kalenkoski and Pabilonia 2021).

We also provide one of the first analyses of the mental health consequences, and the gender differences therein, of the COVID-19 pandemic in the context of a developing country like India<sup>5</sup>, complementing the findings of gender differentials in levels of stress, anxiety, and behaviour relating to own health of doctors in Kazakhstan by Bazarkulova and Compton (2021). We further contribute to the feminist discourse by analysing the roles of pandemic-induced employment losses and social networks in mediating these differential effects by gender. In particular, our findings extend the literature on the role of internalized social norms about gender

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<sup>5</sup> Altindag *et al* (2020) examine the mental health impact of COVID-19 induced mobility restrictions for senior citizens in Turkey, but do not explore gender differences.

roles (Bertrand, Kamenica and Pan, 2015) by analysing the implications of fewer pandemic-induced female job losses compared to male job losses on the home environment, specifically mental well-being of spouses (Shang et al. 2021; Gash and Plagnol, 2021). Furthermore, our results on how the home-based nature of women's social networks shape their mental health during the pandemic differentially than men directly relates to the rich feminist literature on the importance of mobility and physical autonomy on women's well-being (Hanson 2010; Jejeebhoy and Sathar, 2004), and particularly how this has been affected during COVID-19 (Woskie and Wenham, 2021; Hamermesh 2021).

While increasing attention is being paid to understand the overall psychological underpinnings of economic deprivation, with recent studies emphasizing the role of psychological empowerment in improving savings and health-seeking behaviour (Ghosal, et al. 2020) and child investments (Baranov, et al. 2020), there has been little focus so far on examining the pandemic's psychological impacts more specifically. To that extent, our paper also relates to the emerging literature in developed countries on the overall psychological effects of the COVID-19 pandemic in Europe and US (Brodeur, et al. 2020), as well as the gendered impact in US (Adams-Prassl, et al. 2020) and UK (Etheridge and Spantig, 2020).

## 2. Data, Variables and Estimation

### 2a. Data description

*Pre-pandemic survey:*

With the aim of studying factors driving low female labour force participation in urban India, we started with a survey across 5 districts of Delhi in May-July 2019.<sup>6</sup> Within these 5 districts, we chose 10 assembly constituencies with concentration of light industries, from which 108 primary sampling units PSUs were randomly selected (see Appendix Figure A1). From each PSU, 15 eligible households were randomly chosen to participate in this study. A household was considered eligible if there was at least one married couple in the age group of 18-45 years.

The baseline (pre-pandemic) survey consisted of two surveys: a household survey and an individual survey. The household survey was comprised of 1613 households and provided information regarding household composition, socioeconomic characteristics, assets owned etc. The questionnaire was supposed to be answered by the household head, but in case of unavailability, any knowledgeable adult was allowed to respond. Following the household survey, the youngest couple of the household<sup>7</sup> (between 18-45 years of age) was interviewed as part of the individual survey, where we were able to reach 97% of our target sample. The husband and wife were interviewed individually.

Next, we created a combined pre-pandemic sample containing both household and individual characteristics. After fuzzy matching the household head's name from the pre-pandemic household survey with the husband's name from the pre-pandemic individual survey, we retained

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<sup>6</sup> For the baseline sample, we first drew a list of electoral board (EB) wards around planned industrial estates of Delhi, concentrated in 5 (North, North-West, West, North-East and Shahdara) of the 11 districts of Delhi. Dropping wards that comprised of only planned, 'regularised' colonies (and hence are relatively economically better off compared to unauthorised settlements and slum dwellings), EB wards were mapped to census wards. These census wards were contained within 10 Assembly constituencies (AC). In each AC, 10 polling stations (PS) were randomly sampled and 15 households within each PS through systematic random sampling. 8 additional polling stations were randomly sampled to address interview refusals. Our final sample consists of 108 polling stations and 1613 households. PS forms our primary sampling units.

<sup>7</sup> This was in case there were multiple couples in this age group in the household.

1034 pre-pandemic households, in which the husband was the main respondent for both individual (male) and household surveys at baseline.<sup>8</sup>

*Pandemic survey:*

The Indian government imposed a stringent 21-day national lockdown to deal with the pandemic on 24 March, 2020 until April 14, which was later extended to May 30, 2020 with some easing of mobility restrictions thereafter. Hence, we were unable to conduct in-person follow-up surveys. Instead, we conducted a phone survey of 1424 households during the pandemic, between 03 April – 19 April, 2020 that coincided with the initial, stringent lockdown.

Since most women in our sample do not own a personal phone, the main respondent of our phone survey was the husband. However, we also separately asked their wives questions on mental health, by requesting the husbands after their interview was complete, to pass the phone on to their wives.<sup>9</sup> This provided us with matched husband-wife data for mental health outcomes, giving a unique insight into the gendered experience of the crisis in this context. Our pandemic sample consists of 745 households out of the 1034 pre-pandemic households, where the same individual was interviewed in both surveys.<sup>10</sup> See Appendix Figure A2 for more details on the sample creation process.

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<sup>8</sup>The remaining 579 households (1613 – 1034) were dropped because of a matching score of < 0.4.

<sup>9</sup>It is possible that some husbands were around when their wives gave us their responses on the mental health questions, but even if this were true, it is likely to bias our findings on women's mental health downwards, as women are likely to underreport their anxieties in front of their husbands (much like women underreporting domestic abuse).

<sup>10</sup>We exclude 166 households where the husband was unavailable for the phone survey, and the wife or some other adult member was the main respondent for all the questions, as there might be systematic differences between these households and the rest of the sample. 123 households could not be surveyed in the pandemic survey.

Our sample data for the employment results comes from both the pre-pandemic and pandemic surveys, and hence constitutes a panel dataset of 1779 household observations, comprised of 1034 pre-pandemic and 745 pandemic households. In contrast, our sample data for the mental health results is only obtained from the pandemic survey, and therefore constitutes a cross-sectional dataset of 745 households. The total number of individual observations in our mental health sample is 1266, out of which 737 observations correspond to husbands and the remaining 529 to wives.

Table 1(a) presents the summary statistics of household characteristics of our sample. The average household has 5.16 members, with an average of 2.3 children. Nearly all households live in *pucca* houses, with two-thirds owning the house they live in. 61% possess ration cards, while 76% belong to lower castes. 83% are Hindu. Two-thirds of the household heads have native homes outside Delhi.

**Insert Table 1(a) about here**

Table 1(b) presents descriptive evidence on the individual characteristics of our sample, differentiated by gender. The average adult male in our sample is 35 years old, and typically 4 years older than his wife. They have almost 8 years of formal schooling on average, compared to 6.7 years in case of their wives. The female employment rate in our sample is significantly low at 18%, relative to 90% for males.<sup>11</sup> 57% of the males in our sample are daily wage earners in factories and construction, or self-employed in the informal sector (e.g., small retail shops). This demographic group is particularly vulnerable to economic and health shocks and may be

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<sup>11</sup>The urban female labour force participation in India was 20.4% in 2017-18 (NSSO).

expected to need significant support through public transfers to tide over the loss of their livelihoods.

**Insert Table 1(b) about here**

Appendix Table A2 shows little selective attrition between the pre-pandemic and pandemic samples, except for religion, assets and husband's education.

## 2b. Outcome variables

### *Employment:*

Our first outcome of interest is “employment” or working status. In both the pre-pandemic and the pandemic surveys, the male respondents were asked to report their main occupation in the months prior to the date of interview.<sup>12</sup> In the pre-pandemic survey, if they reported their main occupation as working (labourers, self-employed and salaried), they were further asked whether they are currently working. In the pandemic survey, the current working status of the respondents who were working pre-pandemic was determined after taking into account the number of days worked after lockdown, the income earned during the same period, and the type of commute used to go to work after lockdown.<sup>13</sup> Based on their responses in both the surveys, the employment variable for males is constructed as a binary variable that equals 1 if the male respondent was currently employed during the relevant reference period, and 0 otherwise.

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<sup>12</sup>In particular, we asked respondents to report their main occupation *over the last 12 months* in the pre-pandemic survey and *before lockdown was imposed on March 24<sup>th</sup>* in the pandemic survey.

<sup>13</sup>To elaborate further, in the pandemic survey an individual is considered to be working if the number of days worked after lockdown is not zero; the income earned is positive or the respondent has not reported “don’t go for work currently” in response to the commute question.

In contrast, the employment variable for females is constructed based on the responses provided by their spouses and is not self-reported. In the pre-pandemic survey, a woman is considered employed if her spouse reported her as being employed in the pre-pandemic household survey. In the pandemic survey, a woman is considered employed only if her spouse reported her as being employed in the pre-pandemic individual survey and her spouse did not report her job loss in the pandemic survey. Similar to males, the employment variable for females is constructed as a binary variable that equals one if the female was reported as employed during the relevant reference period, and 0 otherwise.

#### *Earnings:*

In the pre-pandemic (individual) survey, male respondents were asked about their monthly earnings if employed. In the pandemic survey, they were asked to report their total earnings from the first day of the lockdown (March 24<sup>th</sup>, 2020) until the date of the survey. In order to make this comparable with the pre-pandemic data, if total days worked were less than 30, the income reported by the respondent is used directly in the analysis. However, if the number of days worked exceeded 30, we calculated income per day and later multiplied it by 30 to derive monthly earnings in the follow-up survey.<sup>14</sup> Since the main respondents in the pandemic survey were men, we do not have earnings data for women.

#### *Mental Health:*

In contrast to employment data, we directly collected mental health data from both our male and female respondents, but only in the pandemic survey. Similar to Fetzner et al (2022), our

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<sup>14</sup>If, in some cases, income reported during the follow-up survey was positive, but the total number of days worked was reported to be zero, then we use the total days since the beginning of the lockdown to the date of the survey to first calculate income per day and then the average monthly earnings.

respondents were asked questions about five different aspects of their mental health relating specifically to the COVID-19 pandemic: “To what extent do you agree or disagree with the following statements”:

*Nervous/Anxious*: “I feel nervous when I think about the current circumstances”;

*Health worry*: “I am worried about mine and my family’s health”;

*Financial stress*: “I feel stressed about mine and my family’s financial situation”;

*Depressed*: “I am feeling down, depressed or hopeless”;

*Sleep disorder*: “I am having sleeping troubles (too much or too little).”

The response scale for each of these statements was: “1-Strongly agree”, “2-Agree”, “3-Indifferent”, “4-Disagree”, “5-Strongly disagree”. For each of these five statements, a binary variable is created that equals 1 if the answer is either 1 or 2, and 0 if the answer is 3, 4 or 5. These five binaries are then added up and divided by 5 to generate a mental stress index between 0 and 1, and then converted into a standardized Z-score by subtracting the mean and dividing by the standard deviation. Higher values of the index, therefore, indicate worse mental health.

Similar standardized mental health indices have been used to study the impact of the COVID-19 pandemic on individuals’ worries and depression across 58 countries (Fetzer et al, 2022), elderly mental health in Turkey (Altindag et al, 2021), as well as the effect of education on mental health and violence in Turkey (Erten and Keskin, 2020), the impact of cognitive behavioural therapy on mental health and criminal behaviour among Liberian youth (Blattman et al, 2017), the effect of psychological empowerment on self-image among marginalized groups in India (Ghosal et al, 2020). The advantages of using a mental health index are twofold. First, it gives us greater statistical power to identify effects for a family of variables that capture similar symptoms of

mental well-being and move in the same direction (Erten and Keskin, 2020). Second, it also helps us address potential multiple inference problems (Duflo, Glennester and Kremer, 2007), since we are studying gender differences in the pandemic's impact on five mental health variables, raising concerns that these differences are simply being observed by chance among all the different outcome variables.

For robustness purposes, we present results with both the mental stress index, as well as the five binary variables relating to the individual mental health questions.

## 2c. Other constructed variables

### *Social network variables:*

In the pre-pandemic individual survey, all the respondents were asked to name two friends/close relatives to whom they could reach out in case of each of eight hypothetical situations.<sup>15</sup> These situations (categories) are as follows:

- (i) whom would they borrow Rs 400-500 from for a day in case of emergency;
- (ii) whom would they contact if in needed to rush to the hospital/doctor;
- (iii) whom would they contact to borrow food items like cooking oil, sugar etc immediately from the neighbourhood;
- (iv) whom would they like to go for a walk or chat with in free time;
- (v) whom would they would go for shopping or local market to buy groceries etc;
- (vi) whom would they approach for attending social functions or religious events like going to

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<sup>15</sup>These friends/close relatives were not people residing in the same house as the respondent.

temple/mosque etc. together;

(vii) whom would they have lunch with or spend free time with at work; and

(viii) who are their preferred friends to travel to work with.

The response options are: “parent”, “uncle/aunt”, “cousin/siblings”, “in-laws”, “friends”, “co-workers”, “neighbour/friend from nearby lane/block”, “neighbour/friend from previous locality” and “neighbour/friend from native home” and “others”. Adding up answers for all these questions gives us the total number of *friends*<sup>16</sup> for each individual, which ranges from 2 to 16.<sup>17</sup> Adding up answers for all the category questions gave us total number of unique friends for each individual, with values ranging from 2 to 13 for females and 2 to 10 for males.

To further analyse the differential impacts by *type* of social networks, we aggregated the total number of friends into two sub-categories:

(i) *home-friends* comprised of friends based around home, including “parent”, “uncle/aunt”, “cousin/siblings”, “in-laws”, “friends”, “neighbour/friend from nearby lane/block”<sup>18</sup>, and “others”<sup>19</sup>;

(ii) *work-friends* comprised of friends in workplace i.e. “co-workers”.

We calculated the total number of *home-friends* and that of *work-friends*. As Table 1(b) shows,

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<sup>16</sup>We use the term “friends” throughout to denote both friends and close relatives.

<sup>17</sup>To avoid any duplication, we performed fuzzy matching between names, in pairs of two for all names provided by the individual. If the matching score between any two names was equal to 1, we reported one observation as missing for each pair.

<sup>18</sup>Our results remain qualitatively similar if we further disaggregate between home-friends and neighbourhood-friends.

<sup>19</sup>The answers under “others” were classified into home-friends since most of the detailed answers included under this category were related to home friends.

women report nearly twice as large social networks (6.24 friends on average) as men (3.79 friends on average), but almost all of women's friends are around their home. Men too report more home-based friends, but around 5% of their friends are from their workplace.

#### *Mobile ownership:*

The variable “owns mobile” equals 1 if individual reports owning a mobile phone in the pre-pandemic survey, and 0 otherwise.

#### *Phone interactions:*

The variable “phone interactions” equals 1 if frequency of pre-pandemic phone interactions between respondent and their (index) friend is weekly or more, and 0 otherwise. This information is available for the participants' four closest friends, as ranked by them.

## 2d. Estimation

To estimate the impact of the COVID-19 pandemic on employment and earnings, we conduct a before-and-after analysis using the following regression specification estimates using OLS:

$$y_{it} = \alpha + \beta PostCOVID - 19_t + \gamma Z_i + \varepsilon_{it} \quad (1)$$

where  $y_{it}$  indicates the dependent variable of interest for individual  $i$  in time  $t$ .

$PostCOVID - 19_t$  is a binary variable equal to 1 if the observation relates to the pandemic period, and 0 if it refers to the pre-pandemic period. The coefficient  $\beta$  captures the average impact of the COVID-19 pandemic.  $Z_i$  a vector of pre-pandemic individual and household socioeconomic characteristics including age, education, occupation type, religion, etc. We also

explore the differential impact of the pandemic by pre-pandemic occupation type, including wage employment, self-employment and salaried employment.

In order to analyse the gender difference in the mental health experience of the COVID-19 pandemic, we conduct a cross-sectional analysis using the following regression specification estimated using OLS:<sup>20</sup>

$$m_i = \alpha + \delta Wife_i + \rho Z_i + \varepsilon_i \quad (2)$$

where  $m_i$  indicates the standardized mental stress variable for individual  $i$ .  $Wife_i$  is a binary variable equal to 1 if the individual is the female partner in the couple and 0 if male partner. The coefficient  $\delta$  captures the differential impact of the COVID-19 pandemic on mental health of women relative to men.  $Z_i$  constitutes pre-pandemic individual and household characteristics as explained in equation (1). We also present robustness checks using an ordered probit model.

We assess the role of social networks in explaining gender differences in mental health outcomes by estimating the following OLS regression specification as an extension of (2):

$$m_i = \alpha + \delta Wife_i + \pi Friends_i + \mu Wife_i \times Friends_i + \rho Z_i + \varepsilon_i \quad (2a)$$

where  $Friends_i$  indicates the total number of friends reported by an individual  $i$ . The coefficient  $\pi$  on captures the impact of social network size on mental stress reported by men, while the coefficient on the interaction term  $\mu$  captures the differential impact of social networks on mental health of women relative to men.

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<sup>20</sup> Using z-scores as a dependent variable in an regression model estimated using OLS is common in education economics, e.g. using standardized test scores (Alan et al, 2019; Muralidharan et al, 2019) as well in research on poverty and mental health (Blattman et al, 2017; Altindag et al 2021; Erten and Keskin 2020; Ghosal et al, 2020).

### 3. Impact on Employment and Earnings

#### 3a. Men's employment

We find that the COVID-19 pandemic and subsequent lockdown led to a massive shock to the livelihoods of our study participants (see Figure 1). As expected, most workers in these residential areas (approx. 84% of the men) were completely unable to work, and this situation did not improve over time (Appendix Figure A3).

**Insert Figure 1 about here**

Examining the occupational distribution of this colossal employment shock in Figure 2, we find that wage labourers (e.g., those employed in a specific sector such as manufacturing) and casual labourers (daily wagers not attached to one specific sector) were by far the most adversely affected, followed by the self-employed in informal sector and salaried workers, in terms of loss of livelihoods. We document a marginal decline in reported unemployment among the self-employed and salaried workers later in the lockdown, but not among wage and casual labourers (Appendix Figure A4). This indicates that the most vulnerable among the working population continued to bear the biggest brunt of the pandemic in terms of their livelihoods and economic well-being, and the easing of restrictions did not address the situation.

**Insert Figure 2 about here**

These descriptive patterns are also borne out in our regression analysis. We find that men's self-reported employment (working) status declined by 88 percentage points (pp) during pandemic relative to pre-pandemic (Column 1, Table 2). Consistent with our descriptive evidence, we find that wage and casual labourers experienced a nearly 5 pp greater employment loss during pandemic (significant at 10% level) compared to the omitted group of salaried workers (Column

3, Table 2). However, we cannot reject the equality of coefficients for male wage labourers with that of self-employed men ( $p\text{-value}=0.51$ ).<sup>21</sup> Whether these reported own job losses were permanent or temporary, we hope to decipher in subsequent survey rounds.

**Insert Table 2 about here**

Many of the respondents surveyed reported relying on friends and family to tide over temporary setbacks. We asked about job losses among their social networks, as this would presumably lead to higher levels of stress than otherwise. 76% reported loss of job in their family while over 73% reported loss of job within their network of friends and relatives (Appendix Figure A5). More respondents reported loss of job within their social network (family, relative and friends) later in the lockdown (77%) compared to earlier (67%). Most respondents initially perceived the job losses as temporary, but over time there was an increase in the proportion who perceived the job losses in their social network as permanent, suggesting that as the duration of the lockdown increased, more workers began to perceive their current unemployment status as a permanent job loss (Appendix Figure A6).

### 3b. Men's earnings

Consistent with the pandemic's negative impact on men's employment, we also find that about 83% of the respondents report not earning *any* income during the period of study (Appendix Figure A3). Moreover, among those who were gainfully employed pre-pandemic, monthly earnings declined from an average of approx. Rs. 12,300 pre-pandemic to Rs. 1,259 during the pandemic, a drop of 89% (Figure 3). The biggest impact was borne by casual and wage labourers,

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<sup>21</sup> These results remain qualitatively similar if we use the balanced panel (see Appendix Table A3).

who experienced a reduction of 98%, followed by self-employed (93%) and salaried workers (82%) (Figure 4).

**Insert Figures 4 and 5 about here**

These descriptive patterns are also borne out in our regression analysis. Male reported (unconditional) monthly incomes declined on average by Rs. 10,689 during this period, which is approx. 96% of reported baseline incomes (Column 1, Table 3). Men across all occupation types were affected by the negative income shock (Column 3, Table 3). We cannot reject the equality of the coefficients for male wage labourers with that of self-employed men ( $p=0.57$ ).<sup>22</sup> Hence, irrespective of whether the loss of work was temporary or permanent, households experienced immediate and massive income shocks due to the crisis.

**Insert Table 3 about here**

### 3c. Women's employment

Next, we study the impact of the pandemic on female employment, in order to examine the gendered dimension of the crisis. As discussed in Section 2 above, the husband reports wife's employment status in our pre-pandemic and pandemic surveys. In contrast to the large negative impact on men's employment, we do not find any significant change in reported women's employment during the pandemic (Column 1, Table 4). Comparing across occupations, we find that the estimated pandemic coefficients for female casual/wage workers and self-employed workers are negative (Column 3, Table 4), but not statistically significantly different from the omitted group of salaried workers. We cannot reject the equality of the coefficients for female

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<sup>22</sup> These results remain qualitatively similar if we use the balanced panel (see Appendix Table A4).

wage labourers with that of self-employed women (p-value=0.59).<sup>23</sup>We did not collect information on women's earnings during the pandemic.

**Insert Table 4 about here**

## 4. Impact on Mental health

Emerging evidence points to a significant increase in mental and emotional stress across the world due to the COVID-19 pandemic - some purely arising from the stress due to physical isolation and others related directly to more fundamental concerns about physical and financial well-being. However, given that much of this evidence is focused on developed countries like the UK, US and European nations (Etheridge and Spantig 2020, McGinty, et al. 2020, Pierce, et al. 2020, Banks and Xu 2020, Kuan-Yu, et al. 2020, Proto and Quintana-Domeque 2020), we know little about the pandemic's implications for mental health among people living in developing countries. In this section, we attempt to shed light on this important issue.

We document very high levels of mental stress due to the pandemic among men and women in our study sample, driven primarily by financial (90%) and health concerns (85%). Consistent with emerging evidence, women appear to be suffering from greater mental stress than men (Figure 5). For example, nearly 90% of women report feeling worried about the physical health of their families compared to 85% of men. 66% of men report feeling depressed about their situation while 70% of women do. Strikingly, both men and women worry more about their family's financial adequacy than about their health, though the difference is not statistically

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<sup>23</sup>These results remain qualitatively similar if we use the balanced panel (see Appendix Table A5).

significant. Almost 82% of women felt anxious or nervous about the current situation compared to 64% of men, while 50% of women and 43% of men report having trouble getting adequate sleep.

**Insert Figure 5 about here**

These overall descriptive patterns are also borne out in our regression analysis that systematically examines the gender difference in the mental health experience of the COVID-19 pandemic in our sample. We find that women appear to be bearing a greater burden of pandemic-induced mental stress relative to men, which corroborates our descriptive evidence from Figure 5. Women report 0.234 standard deviations greater mental stress compared to men (Column 1, Table 5). The key aspects of women's stress appear to be anxiety and nervousness, followed by sleeplessness and health worries (Columns 2-6). Women also appear to suffer more health stress compared to men, but not more financial stress.<sup>24</sup>

**Insert Table 5 about here**

#### 4a. Role of Pandemic-induced employment losses

Since the pandemic led to massive loss of livelihoods, we examine whether such employment losses were directly correlated with worse mental health outcomes during the pandemic, differentially by gender. We find that for men, remaining employed during the pandemic is negatively correlated with their mental stress (Column 1, Table 6), primarily through the lowering of financial stress (Column 2, Table 6). In particular, employed men report 0.68 standard deviations lower mental stress, and 0.25 lower likelihood of experiencing financial stress. In contrast, women who continued to work during the pandemic (but whose husbands

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<sup>24</sup> These results are robust to using ordered probit models, see Appendix Table A8.

were unemployed) report 0.22 standard deviations higher mental stress during pandemic compared to their unemployed counterparts. This holds qualitatively across all stress types. This may be indicative of the internalization by *women* of the “male breadwinner” gender norms that were severely disrupted by the pandemic-induced employment losses suffered by men.

**Insert Table 6 about here**

Given the pre-existing gendered nature of employment in our sample, and the widespread employment losses, we also examine the implications of spousal employment on individual mental well-being during pandemic. We find that spousal (wife’s) employment is positively correlated with men’s reported mental stress, driven primarily by health worries that may be picking up husbands’ concern about their wives’ exposure to the virus when they went out to work. In particular, men whose wives remain employed during the pandemic report 0.166 standard deviations increase in overall mental stress (Column 1, Table 6), and 0.09 greater likelihood of experiencing health worries (Column 3, Table 6). Further, we also find that spousal employment during the pandemic is positively correlated with reported depression among men, and could again be reflecting internalised gender attitudes relating to the traditional “male breadwinner” model among men that were severely disrupted by the pandemic-induced employment losses men suffered.<sup>25</sup>

In contrast, spousal employment is negatively correlated with women’s mental stress. Put differently, the negative economic impact of the pandemic on men’s employment and earnings played a key role in heightening mental stress among their wives. In particular, wives whose

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<sup>25</sup> In a related vein, wives’ employment may have heightened men’s mental stress during the pandemic due to gender deviance or threats to their masculinity.

husbands lost their livelihoods during the pandemic report 0.75 standard deviations greater mental stress, while these men themselves report a smaller increase of 0.68 standard deviations in their mental stress.<sup>26</sup>

## 4b. Role of social networks

Theoretical evidence from existing sociological literature has pointed to the role of social networks in mediating psychological stress, but the evidence is mixed. On the one hand, Cohen and Wills (1985) discuss the positive effects of social networks. In particular, they highlight the “stress-buffering” role of networks for individuals in crisis, through the provision of economic and psychological support. On the other hand, Berkman and Kawachi (2001) analyse the potential negative impacts of social networks, arguing that they may paradoxically increase psychological distress owing to higher pressures to provide support to others (“stress-contagion”), especially when participants are facing similar shocks. They emphasize that these negative effects might be especially true for women, who tend to exhibit greater empathy for others’ pain than men (Christov-Moore and Iacoboni, 2018).

Given such theoretical ambiguity, we directly test for gender differences in the role played by social networks on mental stress during the pandemic. For this purpose, we utilise rich social network data that we collected in our pre-pandemic survey, as described in Section 2c. We find that the size of the pre-pandemic social network, as measured by total number of (unique) friends, is associated with lower mental stress for men during pandemic.<sup>27</sup> In particular, men with larger

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<sup>26</sup> The results are robust to inclusion of relevant baseline control variables and their respective interactions with gender (see Appendix Table A7), as well as ordered probit model (see Appendix Table A9).

<sup>27</sup> Our results remain robust if we use total number of friends (including duplication) instead of total “unique” friends (see Appendix Table A6).

social networks report 0.086 standard deviations lower mental stress during COVID-19 compared to those without (Column 2, Table 7). But this pattern is reversed for women, such that women with larger pre-pandemic social networks report on average 0.035 standard deviation *higher* mental stress than those without. In other words, social networks appear to play a mitigating role for men's mental health, but an exacerbating role for women's mental health, especially in times of crisis.

**Insert Table 7 about here**

We also disaggregate the network effect by *type* of social network, in terms of “home-friends” and “work-friends”. We find that the positive association between pre-pandemic network size and mental stress for women during pandemic appears to be entirely driven by what we label as the *home-bound* nature of women's networks, in particular “home friends” (Column 3, Table 7). While for men, having an additional “home-friend” is associated with 0.088 standard deviations lower reported mental stress, for women, the same is associated with an additional 0.035 standard deviation *higher* reported mental stress. In contrast, having more “work-friends” is associated with lower reported mental stress for *both* men and women, although neither is statistically significant.

Next, we attempt to unpack the competing mechanisms that can explain the observed relationships between social networks and mental health. One interpretation of the gender difference in the role of social networks for mental health could be that women, with larger pre-pandemic social connections and hence more reliant on social networks, suffered a bigger mental health impact of the pandemic-induced lockdown that curtailed their interactions with friends and extended family, relative to men. Indeed, the gender-disaggregated analysis of how pre-

pandemic networks are utilised in our sample shows that women are more dependent on their *home-bound* networks for social and recreational support (e.g. going for walks to park, to the market and social events), relative to men (Table 8). This is also consistent with pre-pandemic data from the Time Use Survey in India 2019. Among 15-59 year old individuals in urban Delhi (closest age-range to our sample), a higher proportion of women (54%) report spending time in a day socializing with friends, compared to men (51%). Hence, it is possible that pandemic-induced social distancing may have resulted in greater stress among women due to the loss of *home-bound* friends' socialising and support during this crisis, linked to the "stress-buffering" role of social ties.

However, if this mechanism was to hold, then women who own mobile phones should experience lower levels of mental stress because they would have been able to continue to remain connected to their home-based networks through phones. To examine this in greater detail, we analyse the implications for mental well-being in our sample by pre-pandemic *type of network* and pre-pandemic *mobile ownership*, differentiated by gender. Contrary to expectations, we find that the positive correlation between *home-bound* friends' network size and reported mental stress during pandemic continues to hold for women owning mobile phones as well (Column 4, Table 7), while the opposite is observed for men. We also examined the frequency of our participants' reported interactions with these friends over phone, conditional on phone ownership, for a subset of their 4 closest friends for whom this data was collected. Although no longer statistically significant, the positive coefficient on the triple interaction term *wife\*home-friend\*phone interactions* suggests that women who enjoyed greater phone interaction with their home-friends before the pandemic are those that report higher mental stress during pandemic (Column 5, Table

7). In contrast, the opposite is true for men. We can reject the equality of these coefficients vis-à-vis home-friends at the 10% significance level ( $p=0.08$ ), but not for work-friends ( $p=0.75$ ). Note that mobile ownership is less likely to be subject to measurement error as compared to frequency of interactions. While we cannot ascribe causal interpretations to this analysis, it is interesting nevertheless to understand the correlates of the observed gender differences in mental well-being during the COVID-19 pandemic.

Hence, we conclude that, irrespective of their loss of connection with their social network due to social distancing, women with larger pre-existing *home-bound* networks experienced greater stress. The sociological literature suggests that this may likely be due to increased pressures on women from their social networks (Berkman and Kawachi, 2001). In our context, *home-bound* friends may either cause contagion in stress levels or require more intensive caregiving by women, but not by men. It may also be due to the highly integrated nature of *home-bound* friends who may be spreading anxiety among each other. Hence, we argue that this result points to the “stress-contagion” role rather than the “stress-buffering” role of the *home-bound* social networks for women, but not men.

## 5. Conclusion

We use data from poor households and individuals in urban India, before (May-July 2019) and after (April-May 2020) the COVID-19 pandemic struck to document the impacts on their employment and mental well-being. We assess how these impacts differ by gender by analysing husband-wife matched panel data on self-reported employment status and the intensity of psychological effects. In addition, using detailed pre-pandemic data on the social networks of

husbands and wives, we study whether and how the psychological impact of the crisis is mediated by the size and nature of social networks.

In line with the emerging evidence, we estimate a large negative shock to men's employment status immediately following the shutdown of economic activity due to the nationwide lockdown, relative to the pre-pandemic period. This was also accompanied by a drastic reduction in men's monthly earnings. In contrast, we do not find any significant impact on women's employment.

We document significant psychological impacts due to the financial and health related concerns surrounding the pandemic, but higher amongst women than men, which increased with the extension of the lockdown in our sample. Surprisingly, larger social networks are associated with lower adverse emotional impacts of the pandemic for men, but not for women. We provide suggestive evidence that this appears to be driven by the "stress-contagion" role rather than "stress-buffering" role of home-bound social networks for women, but not men.

Our findings highlight the relevance of understanding the psychological effects of this unprecedented pandemic, particularly the gender differences therein, and their potential long-term implications for economic recovery and labour productivity in developing countries as they emerge from the devastation of the COVID-19 pandemic.

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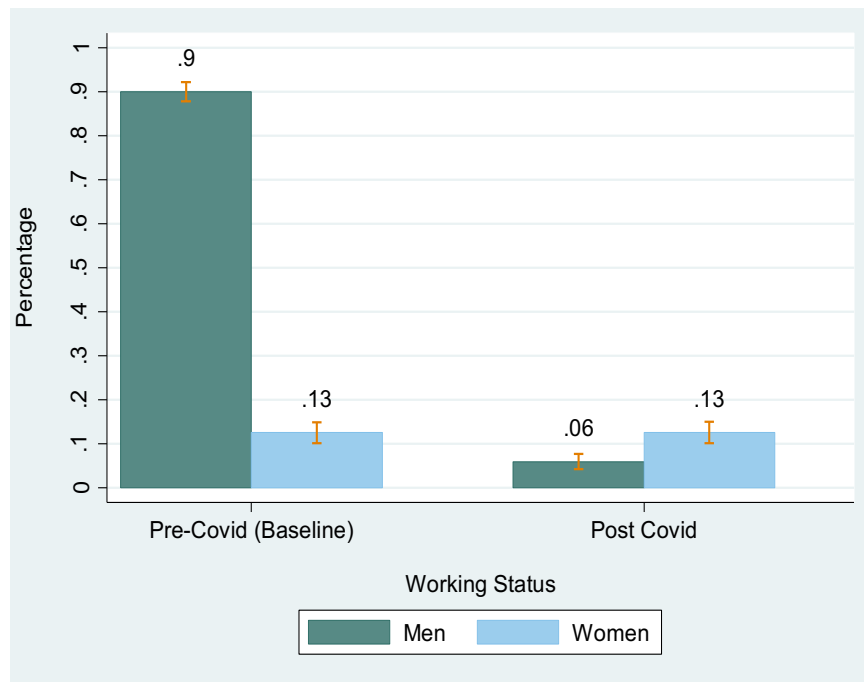
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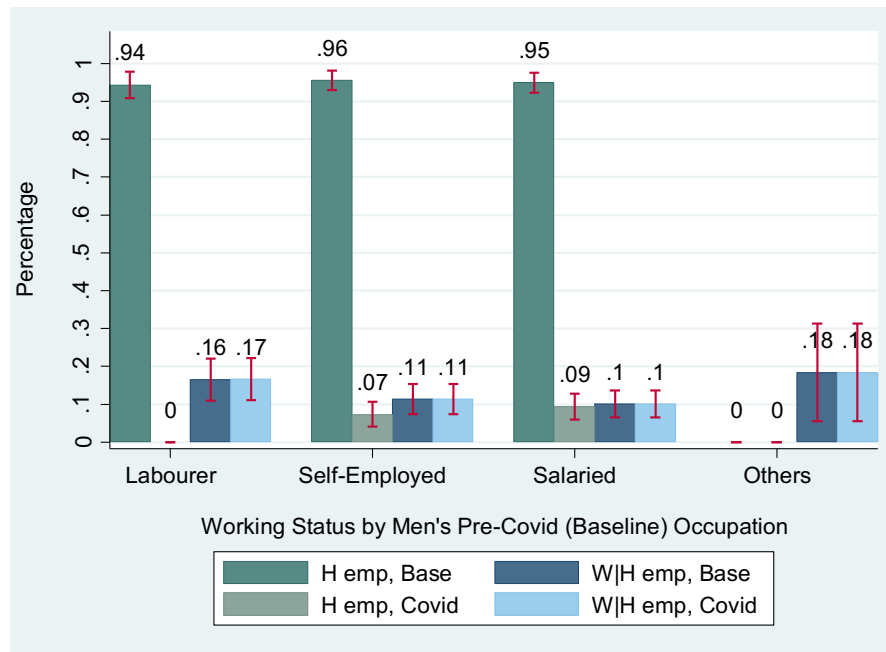
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**Figure 1: Employment Status before and during COVID-19, by Gender**



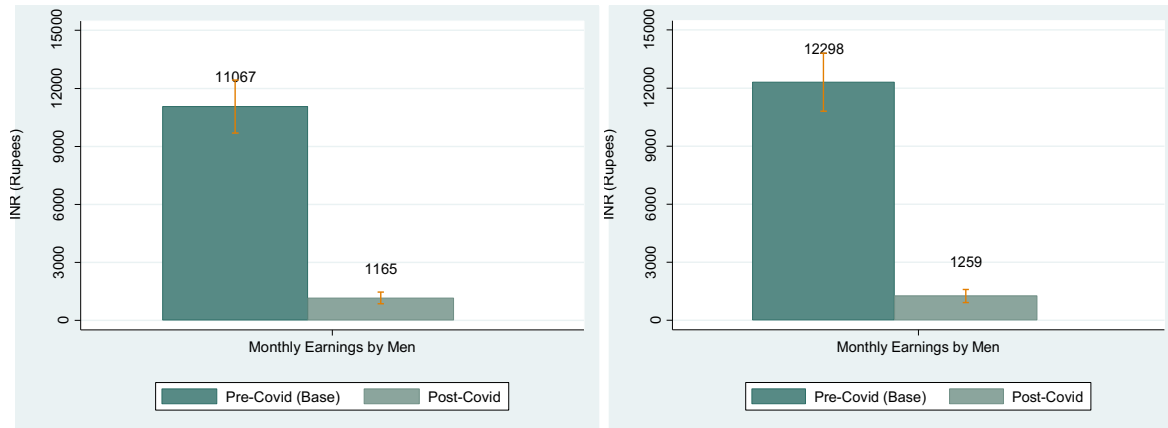
*Notes:* The sample size for pre-COVID-19 (post-COVID-19) survey is 740 (744) and 743 (741) observations for husbands and wives respectively.

**Figure 2: Employment Status before and during COVID-19, by Gender and Pre-COVID-19 Occupation**



*Notes:* The sample size for pre-COVID-19 (post-COVID-19) survey is 740 (744) and 743 (741) observations for husbands and wives respectively.

**Figure 3: Monthly earnings by men, before and during COVID-19**

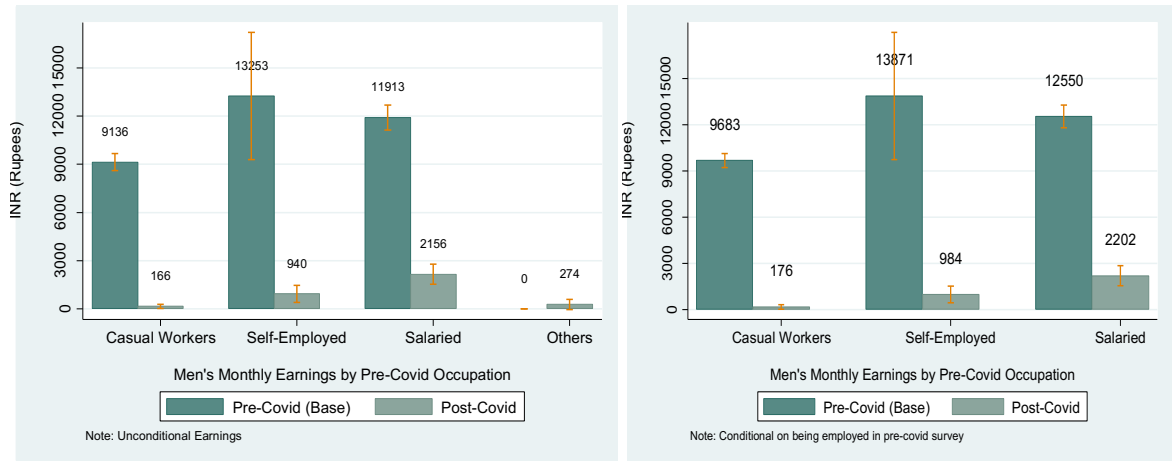


**A. Unconditional**

**B. Conditional on baseline employed**

*Notes:* Figure 5A denotes unconditional earnings, which takes value zero if the respondent is unemployed. Figure 5B denotes earnings conditional on respondents being employed during pre-pandemic (baseline) survey. The sample size for unconditional earnings (conditional earnings) survey is 739 (665) and 739 (661) observations for pre- and post-pandemic surveys respectively.

Figure 4: Monthly earnings by men, before and during COVID-19, by Baseline Occupation

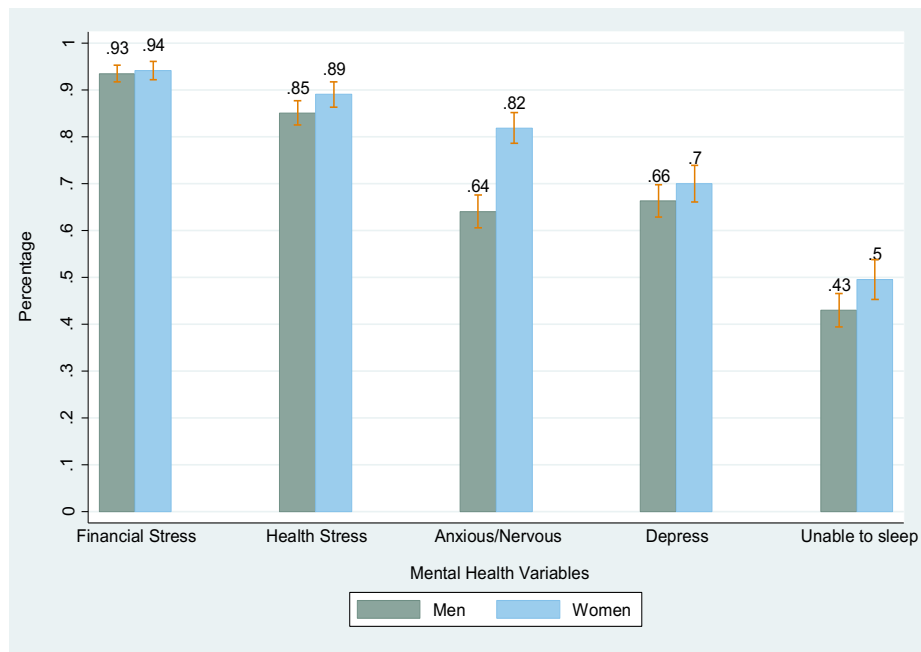


**A. Unconditional**

**B. Conditional on baseline employed**

Notes: Figure 6A denotes unconditional earnings, which takes value zero if the respondent is unemployed. Figure 6B denotes earnings conditional on respondents being employed during pre-pandemic (baseline) survey. The sample size for unconditional earnings (conditional earnings) survey is 739 (665) and 739(661) observations for pre- and post-pandemic surveys.

**Figure 5: Mental health outcomes, by Gender**



*Notes:* The overall sample covers the period from April 3<sup>rd</sup>-May 9<sup>th</sup>. The sample sizes for women and men are 529 and 741 respectively. The reference period for all respondents was from March 25<sup>th</sup> until the date of survey.

**Table 1(a): Pre-COVID-19 Household Characteristics**

	<b>N</b>	<b>mean</b>	<b>se</b>
No. of household members	745	5.16	0.06
No. of years in current location	745	28.29	0.5
No. of children	722	2.26	0.05
Has pucca house (0/1)	745	0.96	0.01
Owns house (0/1)	745	0.66	0.02
Has ration card (0/1)	744	0.61	0.02
Caste	738		
		<i>Scheduled caste</i>	0.41
		<i>Scheduled tribe</i>	0.02
		<i>Other backward caste</i>	0.33
		<i>General</i>	0.24
Hindu (0/1)	745	0.83	0.01
Mean asset index	745	1.81	0.02
Mean asset index of bottom 25th percentile	745	0.91	0.02
Mean asset index of top 25th percentile	745	2.59	0.02
Household head from Delhi (0/1)	745	0.35	0.02

*Notes:* This table presents the pre-COVID-19 pandemic household characteristics of the 745 households that are common in the pre-pandemic and post pandemic survey. The assets index was constructed using Principal Component Analysis. The variable considers 14 assets: own flat/house, box tv, LCD/LED, fridge, clock, stove, cycle, bike, car, fan, cooler, AC, computer, mobile and sewing machine.

**Table 1(b): Pre-COVID-19 Individual Characteristics**

	N	Women		Men		
		mean	se	N	mean	se
Age (years)	723	31.1	0.22	740	35	0.22
Education (years)	722	6.69	0.16	739	7.89	0.14
Occupation	723			740		
<i>Wage labourer</i>		0.08	0.01		0.24	0.02
<i>Self-Employed</i>		0.08	0.01		0.33	0.02
<i>Salaried</i>		0.04	0.01		0.37	0.02
<i>Housewives</i>		0.78	0.02		-	
<i>Others</i>		0.02	0.01		0.06	0.01
Employed (0/1)	723	0.18	0.01	740	0.90	0.01
Monthly income, unconditional (in Rs)	723	758	83	739	11,067	698
Monthly income, if employed (in Rs)	129	4,240	324	665	12,298	761
Total friends	723	6.24	0.10	740	3.79	0.06
Total Unique friends	723	5.51	0.07	740	3.54	0.05
Unique home friends	723	5.48	0.07	740	3.35	0.05
Unique work friends	723	0.03	0.01	740	0.19	0.02

*Notes:* This table presents the pre-COVID-19 pandemic individual characteristics of the 745 households' common in pre-pandemic and post pandemic survey. The variable "employed" shows the percentage of people currently in employment/working from total sample at baseline. The construction of the variables "total friends" and "total unique friends", as well as "home-friends" and "work-friends" is discussed in Section 2c. of the paper.

**Table 2: Impact on Male employment, by occupation**

	(1)	(2)	(3)
	<b>Men's self-reported employment</b>		
Post-COVID-19	-0.883*** (0.014)	-0.883*** (0.014)	-1.073*** (0.120)
Husband is labourer at baseline		-0.048*** (0.014)	-0.029 (0.022)
Husband is self-employed at baseline		-0.008 (0.011)	0.004 (0.015)
Wife is labourer at baseline		-0.063* (0.033)	-0.075** (0.033)
Wife is self-employed at baseline		-0.059* (0.034)	-0.070*** (0.027)
Wife is housewife at baseline		-0.060** (0.027)	-0.056*** (0.013)
Post-COVID-19*Husband is labourer at baseline			-0.047* (0.027)
Post-COVID-19*Husband is self-employed at baseline			-0.030 (0.027)
Post-COVID-19*Wife is labourer at baseline			0.035 (0.084)
Post-COVID-19*Wife is self-employed at baseline			0.032 (0.078)
Post-COVID-19*Wife is housewife at baseline			-0.007 (0.065)
Constant	0.922*** (0.047)	1.027*** (0.053)	1.104*** (0.060)
Adj. R-sq.	0.78	0.78	0.78
Controls	Yes	Yes	Yes
Post-COVID-19*Controls	No	No	Yes
N	1561	1561	1561

*Notes:* The dependent variable denotes the self-reported employment status of men pre- and post-COVID-19 pandemic. It is a binary variable, where 1 represents employed and zero otherwise. For this table, we use respondents who reported their pre-COVID-19 main occupation as working (labourers, self-employed and salaried), resulting in 953 pre-pandemic and 688 post-pandemic observations, amounting to a total sample size of 1643 observations. Owing to missing values in independent variables, as shown in table above, the sample size further reduced to 1563. Here, the reference category for own and spouse's occupation is salaried. The baseline controls include low caste dummy, Hindu (religion) dummy, house type, household head native state dummy, number of years living in a location, owns a ration card dummy, own flat dummy, number of household members, assets index, age and education of the respondents. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

**Table 3: Impact on Male earnings, by occupation**

	(1)	(2)	(3)
	<b>Men's Monthly Earnings</b>		
Post-COVID-19	-10689.608*** (759.086)	-10694.158*** (764.964)	3599.419 (6487.470)
Husband is labourer at baseline		-1468.898* (816.051)	-1267.037 (1434.242)
Husband is self-employed at baseline		-644.161 (1144.876)	-301.330 (2011.356)
Wife is labourer at baseline		-890.800 (794.660)	-757.919 (1243.627)
Wife is self-employed at baseline		-1512.931* (798.879)	-1412.023 (1109.104)
Wife is housewife at baseline		-355.599 (766.873)	550.717 (1340.105)
Post-COVID-19*Husband is labourer at baseline			-434.926 (1464.357)
Post-COVID-19*Husband is self-employed at baseline			-853.601 (2061.048)
Post-COVID-19*Wife is labourer at baseline			-675.581 (1834.091)
Post-COVID-19*Wife is self-employed at baseline			-3.385 (1607.141)
Post-COVID-19*Wife is housewife at baseline			-2095.598 (1919.078)
Constant	4133.721 (2975.223)	5823.755* (3471.273)	129.315 (6209.891)
Adj. R-sq.	0.11	0.11	0.11
Controls	Yes	Yes	Yes
Post-COVID-19*Controls	No	No	Yes
N	1554	1554	1554

*Notes:* The dependent variable denotes the unconditional average monthly earnings of men pre- and post-COVID-19 pandemic. The variable is continuous and takes value zero if the respondent is not employed. For this table, we use respondents who reported their pre-COVID-19 main occupation as working (labourers, self-employed and salaried), resulting in 950 pre-pandemic and 685 post-pandemic observations, amounting to a total sample size of 1635 observations. Owing to missing values in independent variables, as shown in table above, the sample size further reduced to 1554. Here, the reference category for own and spouse's occupation is salaried. Baseline controls as described in Table 2. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

**Table 4: Impact on Female employment, by occupation**

	(1)	(2)	(3)
	<b>Women's employment as reported by husband</b>		
Post-COVID-19	-0.004 (0.008)	-0.000 (0.005)	-0.005 (0.070)
Husband is labourer at baseline		-0.003 (0.024)	0.000 (0.023)
Husband is self-employed at baseline		-0.006 (0.019)	-0.006 (0.020)
Wife is labourer at baseline		-0.091 (0.073)	-0.070 (0.070)
Wife is self-employed at baseline		-0.339*** (0.080)	-0.330*** (0.081)
Wife is housewife at baseline		-0.704*** (0.058)	-0.698*** (0.055)
Post-COVID-19*Husband is labourer at baseline			-0.008 (0.016)
Post-COVID-19*Husband is self-employed at baseline			-0.000 (0.013)
Post-COVID-19*Wife is labourer at baseline			-0.053 (0.054)
Post-COVID-19*Wife is self-employed at baseline			-0.023 (0.064)
Post-COVID-19*Wife is housewife at baseline			-0.014 (0.042)
Constant	0.085 (0.106)	0.775*** (0.105)	0.779*** (0.104)
Adj. R-sq.	0.05	0.47	0.46
Controls	Yes	Yes	Yes
Post-COVID-19*Controls	No	No	Yes
N	1558	1558	1558

*Notes:* The dependent variable denotes the employment status of women as reported by their husbands pre- and post-COVID-19 pandemic. It is a binary variable, where 1 represents employed and zero otherwise. For this table, we use respondents who reported their pre-COVID-19 main occupation as working (labourers, self-employed and salaried), resulting in 958 pre-pandemic and 688 post-pandemic observations, amounting to a total sample size of 1646 observations. Owing to missing values in independent variables, as shown in table above, the sample size further reduced to 1558. Here, the reference category for own and spouse's occupation is salaried. Baseline controls as described in Table 2. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

**Table 5: Impact on Mental health, by Gender**

	(1)	(2)	(3)	(4)	(5)	(6)
	<b>Mental Stress</b>	<b>Financial Stress</b>	<b>Health Stress</b>	<b>Nervous/Anxious</b>	<b>Depressed</b>	<b>Sleep disorder</b>
Wife	0.234*** (0.036)	0.007 (0.011)	0.040** (0.017)	0.178*** (0.022)	0.036 (0.024)	0.066*** (0.023)
Constant	-0.117* (0.062)	0.935*** (0.010)	0.851*** (0.018)	0.640*** (0.024)	0.663*** (0.024)	0.429*** (0.031)
Adj. R-sq.	0.01	0.00	0.00	0.04	0.00	0.00
N	1266	1266	1266	1266	1265	1265

Notes: The dependent variable in column 1 is a standardized mental health variable as described in Section 2b of the paper, where higher values indicate worse mental health. The remaining dependent variables in columns 2-6 are the components of the standardized variable, as described in Section 2b. There are 737 observations for men and 529 for women, giving a total of 1266 observations. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

**Table 6: Impact on Mental health, by Gender: Role of Post-COVID-19 employment loss**

	(1)	(2)	(3)	(4)	(5)	(6)
	<b>Mental Stress</b>	<b>Financial Stress</b>	<b>Health Stress</b>	<b>Nervous/Anxiety</b>	<b>Depressed</b>	<b>Sleep disorder</b>
Wife	0.209*** (0.040)	-0.007 (0.011)	0.045** (0.019)	0.182*** (0.026)	0.019 (0.025)	0.053** (0.023)
Employed Post-COVID-19	-0.683*** (0.169)	-0.252*** (0.061)	-0.095 (0.064)	-0.143* (0.076)	-0.288*** (0.075)	-0.181** (0.075)
Wife*Employed Post-COVID-19	0.906*** (0.196)	0.311*** (0.063)	0.154** (0.073)	0.183** (0.084)	0.394*** (0.093)	0.229** (0.097)
Spouse Employed Post-COVID-19	0.166* (0.087)	-0.000 (0.026)	0.090*** (0.031)	0.074 (0.047)	0.068* (0.040)	0.000 (0.056)
Wife*Spouse Employed Post-COVID-19	-0.917*** (0.287)	-0.270*** (0.095)	-0.307*** (0.097)	-0.324*** (0.103)	-0.253** (0.114)	-0.132 (0.114)
Constant	-0.103 (0.067)	0.949*** (0.011)	0.844*** (0.020)	0.639*** (0.027)	0.669*** (0.026)	0.437*** (0.033)
Adj. R-sq.	0.04	0.05	0.01	0.04	0.02	0.01
N	1259	1259	1259	1259	1258	1258

Notes: The dependent variable in column 1 is a standardized mental health variable as described in Section 2b of the paper, where higher values indicate worse mental health. The remaining dependent variables in columns 2-6 are the components of the standardized variable, as described in Section 2b. There are 737 observations for men and 529 for women, giving a total of 1266 observations. Owing to missing values in pre-COVID-19 employment data, the sample size has truncated to 1259 observations. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

**Table 7: Impact on Mental health, by Gender: Role of Social networks**

	(1)	(2)	(3)	(4)	(5)
	<b>Mental Stress</b>				
Wife	0.234*** (0.036)	-0.796** (0.337)	-0.796** (0.335)	-0.201 (0.429)	-0.161 (0.522)
Total friends		-0.086** (0.029)			
Wife*Total friends		0.121*** (0.037)			
Home-friends			-0.088** (0.029)	0.116** (0.045)	-0.061 (0.084)
Wife*Home-friends			0.123*** (0.037)	-0.086 (0.057)	0.015 (0.134)
Work friends			-0.052 (0.071)	-0.183 (0.277)	-0.121 (0.199)
Wife*Work friends			-0.075 (0.137)	0.248 (0.735)	-0.195 (0.634)
Owns Mobile				0.520*** (0.249)	
Wife*Owns Mobile				-0.519 (0.361)	
Owns Mobile*Home-friends				-0.223*** (0.052)	
Wife*Owns Mobile* Home-friends				0.234*** (0.067)	
Owns Mobile*Work friends				0.138 (0.286)	
Wife*Owns Mobile*Work friends				-0.347 (0.751)	
Phone interactions					0.611 (0.380)
Wife*phone interactions					-1.021 (0.704)
Home-friend*phone interactions					-0.209 (0.136)
Wife*Home-friend*phone interactions					0.314 (0.207)
Work-friend*phone interactions					0.042 (0.268)
Wife*Work-friend*phone interactions					-0.297 (0.957)
Constant	-0.117* (0.062)	0.501* (0.301)	0.503 (0.303)	-0.066 (0.379)	0.420 (0.385)
Adj. R-sq.	0.01	0.06	0.06	0.06	0.06
Controls	No	Yes	Yes	Yes	Yes
Wife*Controls	No	Yes	Yes	Yes	Yes
N	1266	1225	1225	1225	1175

*Notes:* The dependent variable is a standardized mental health variable as described in Section 2b of the paper, where higher values indicate worse mental health. There are 737 observations for men and 529 for women, giving a total of 1266 observations, as shown in Column 1. Total friends are total number of unique friends for each individual as described in Section 2c of the paper. In column 5, the variable “phone interactions” equals 1 if frequency of pre-pandemic phone interactions between respondent and their friend is weekly or more, and zero otherwise. This information is available for their four closest friends, as ranked by them. Baseline controls as described in Table 2, including post-pandemic employment status of men and women. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

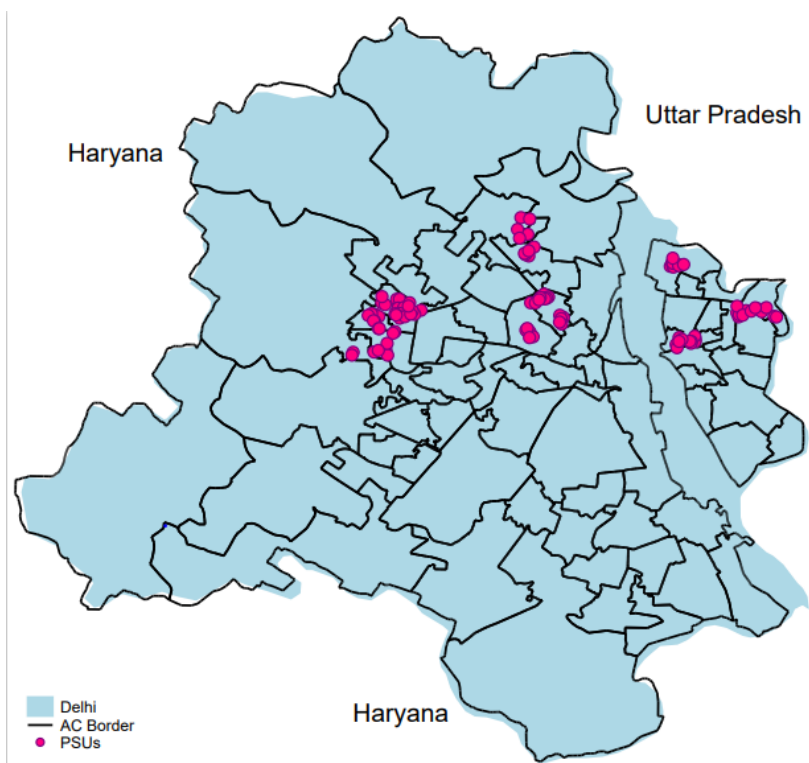
**Table 8: Nature of dependencies in social networks, by gender**

Proportion of friends used to:	Men	Women
<i>Borrow money</i>	0.98	0.96
<i>Medical emergency</i>	0.87	0.88
<i>Food emergency</i>	0.31	0.60
<i>Going to park</i>	0.30	0.87
<i>Going to market</i>	0.07	0.40
<i>Going to festivals/religious events</i>	0.09	0.38
<i>Going for lunch at work</i>	0.14	0.15
<i>Travel to work</i>	0.04	0.02

*Notes:* This table denotes proportion of respondents having friends in each category. The respondents were asked to report a maximum of 2 names for each category. The 8 category questions are as described in Section 2c of the paper.

# Online Appendix

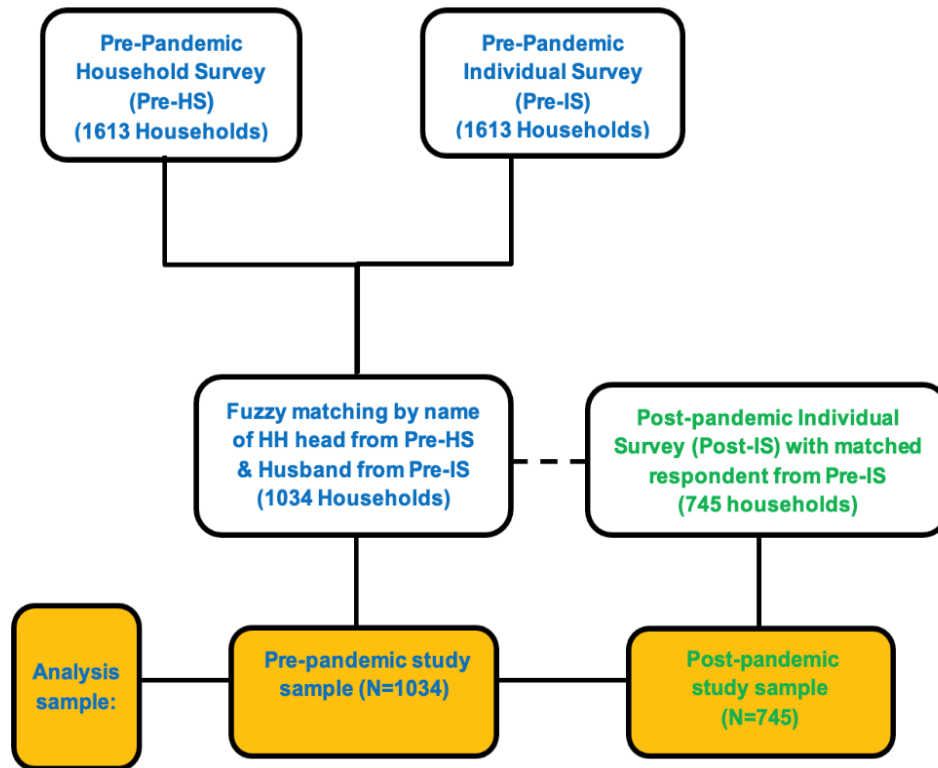
**Figure A1: Sample selection – 108 Primary Survey Units**



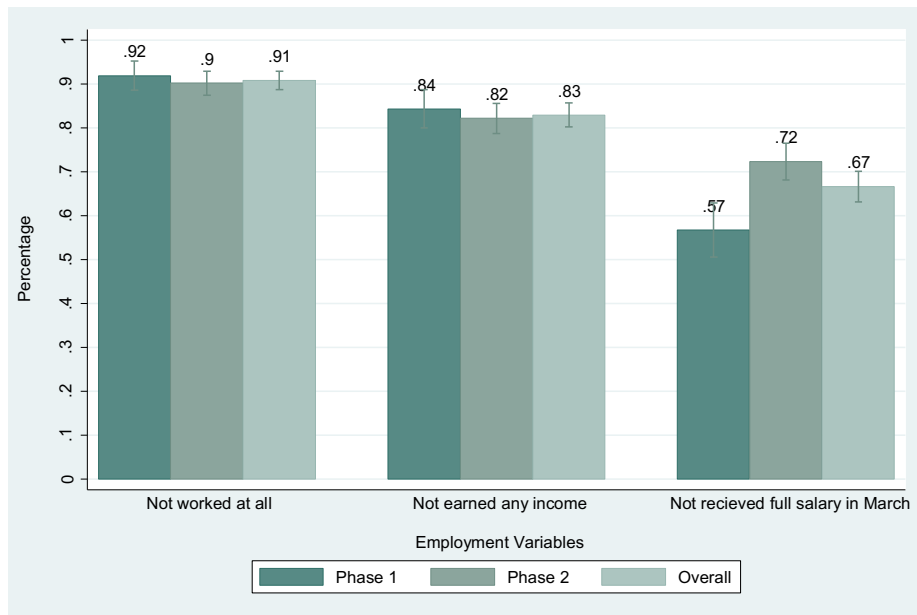
*Notes:* This figure is a graphical representation of our sample area for this study. Area shaded in blue represents entire Delhi region, and pink dots denote the 108 primary survey units chosen through systematic random sampling for conducting the survey. The map is based on census (2001) shape files of districts and assembly constituencies of Delhi, and geographical coordinates collected via survey to represent the PSU's.

*Source:* Census (2001) and Authors' calculations based on pre-pandemic data.

Figure A2: Flowchart on Sample Creation

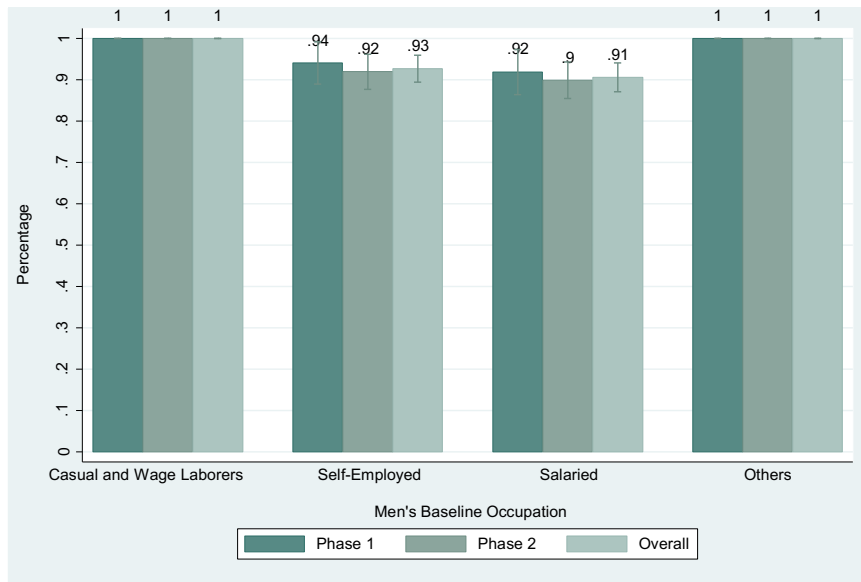


**Figure A3: Men's Employment Status during Covid19**



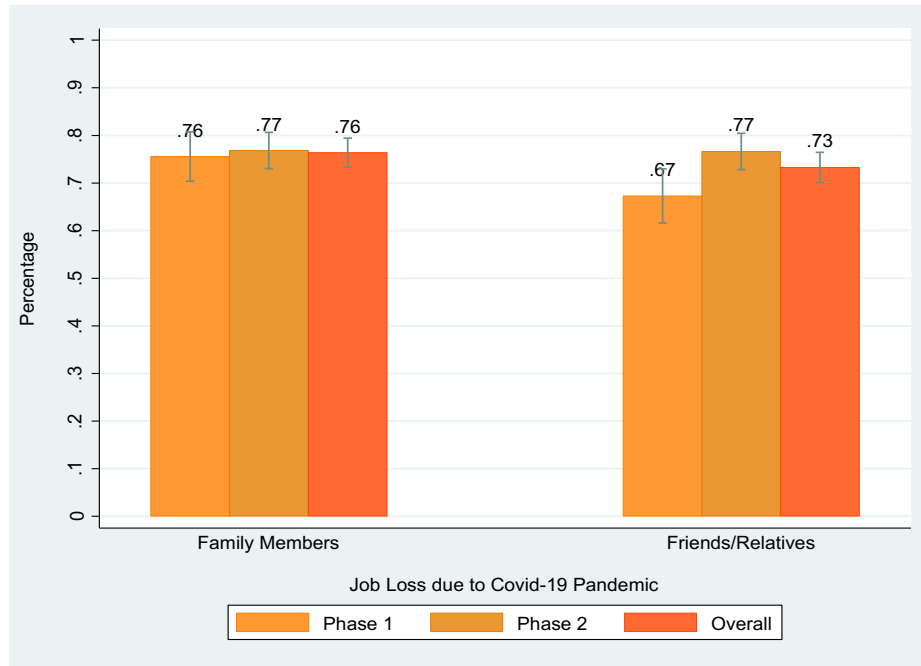
*Notes:* This figure depicts employment status of men during the lockdown based on three aspects; not worked at all, not earned any income during lockdown (beginning 24<sup>th</sup> March, 2020) and not received full salary in the month of March. The overall sample covers the period from April 3<sup>rd</sup>-May 9<sup>th</sup>. Phase 1 refers to respondents surveyed between April 3<sup>rd</sup>- April 19<sup>th</sup> and Phase 2 refers to respondents surveyed between April 20<sup>th</sup> - May 9<sup>th</sup>. The phase 1 consists of 268 data points, whereas this count is 477 for the phase 2. The reference period for all respondents was from March 25<sup>th</sup> until the date of survey.

**Figure A4: Men's Unemployment Status during Covid19, by Pre-Covid19 Occupation**



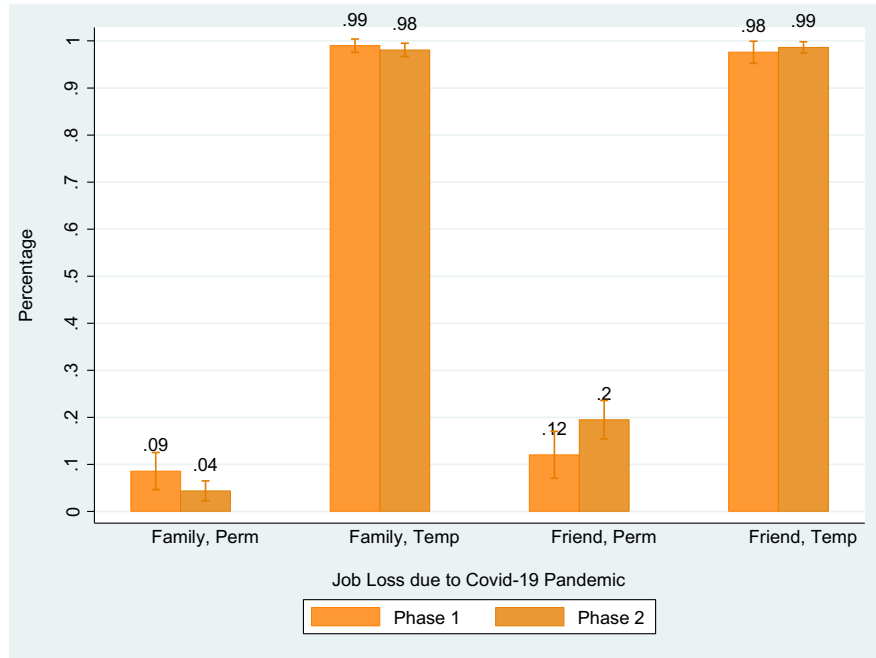
*Notes:* This figure illustrates percentage of men unemployed during the lockdown by their pre-pandemic (baseline) occupational categories. The overall sample covers the period from April 3<sup>rd</sup>- May 9<sup>th</sup>. Phase 1 refers to respondents surveyed between April 3<sup>rd</sup>- April 19<sup>th</sup> and Phase 2 refers to respondents surveyed between April 20<sup>th</sup> - May 9<sup>th</sup>. The phase 1 consists of 268 data points, whereas this count is 477 for the phase 2. The reference period for all respondents was from March 25<sup>th</sup> until the date of survey.

**Figure A5: Family and Friends job loss during Covid-19, by Phases**



*Notes:* This figure indicates percentage of friends and relatives of the respondent who lost job due to lockdown, by phases. The overall sample covers the period from April 3<sup>rd</sup>-May 9<sup>th</sup>. Phase 1 refers to respondents surveyed between April 3<sup>rd</sup>- April 19<sup>th</sup> and Phase 2 refers to respondents surveyed between April 20<sup>th</sup>-May 9<sup>th</sup>. Phase 1 consists of 268 observations and Phase 2 consists of 477 observations for males. The reference period for all respondents was from March 25<sup>th</sup> until the date of survey.

**Figure A6: Family and Friends job loss during Covid-19, by Phases and type**



*Notes:* This figure indicates percentage of friends and relatives of the respondent who lost job due to lockdown, by phases and types. Temp” here signifies the respondent’s perception of job loss as temporary, where “Perm” here signifies their perception of job loss as permanent. The overall sample covers the period from April 3<sup>rd</sup>-May 9<sup>th</sup>. Phase 1 refers to respondents surveyed between April 3<sup>rd</sup>-April 19<sup>th</sup> and Phase 2 refers to respondents surveyed between April 20<sup>th</sup>-May 9<sup>th</sup>. Phase 1 consists of 268 observations and Phase 2 consists of 477 observations for males. The reference period for all respondents was from March 25<sup>th</sup> until the date of survey

**Table A1: Pre-pandemic Household and Individual Characteristics, by Phases**

	PHASE 1			PHASE 2		
	N	mean	se	N	mean	se
<b><i>Household characteristics</i></b>						
No. of household members	268	5.2	0.01	477	5.14	0.07
No. of years in current location	268	26.52	0.84	477	29.28	0.62
No. of children	237	2.59	0.08	420	2.42	0.05
Has pucca house (0/1)	268	0.95	0.01	477	0.97	0.01
Owens house (0/1)	268	0.68	0.03	477	0.64	0.02
Has ration card (0/1)	268	0.57	0.03	476	0.64	0.02
Caste	265			473		
<i>Scheduled caste</i>		0.37	0.03		0.44	0.02
<i>Scheduled tribe</i>		0.02	0.01		0.02	0.01
<i>Other backward caste</i>		0.35	0.03		0.32	0.02
<i>General</i>		0.26	0.03		0.23	0.02
Hindu (0/1)	268	0.85	0.02	477	0.82	0.018
Mean assets index	268	1.74	0.04	477	1.84	0.03
Mean asset index of bottom 25 <sup>th</sup> percentile	68	0.91	0.03	103	0.90	0.03
Mean asset index of top 25 <sup>th</sup> percentile	53	2.56	0.03	127	02.61	0.02
Household head from Delhi (0/1)	268	0.31	0.03	477	0.37	0.02
<b><i>Individual characteristics</i></b>						
Wife's age (years)	262	31.11	0.36	461	31.1	0.28
Husband's age (years)	268	35.09	0.37	472	34.94	0.29
Wife's education (years)	261	6.13	0.28	461	7	0.2
Husband's education (years)	268	7.54	0.24	471	8.1	0.17
Wife's occupation	262			461		
<i>Wage labourer</i>		0.09	0.02		0.07	0.01
<i>Self Employed</i>		0.08	0.02		0.08	0.01
<i>Salaried</i>		0.03	0.01		0.05	0.01
<i>Housewife</i>		0.77	0.27		0.78	0.02
<i>Other</i>		0.03	0.01		0.02	0.01
Husband's occupation	268			472		
<i>Wage labourer</i>		0.26	0.03		0.22	0.02
<i>Self Employed</i>		0.32	0.03		0.34	0.02
<i>Salaried</i>		0.37	0.03		0.38	0.02
<i>Other</i>		0.05	0.01		0.06	0.01
Wife is employed (0/1)	262	0.20	0.03	461	0.17	0.02
Husband is employed (0/1)	268	0.90	0.02	472	0.90	0.01
Wife's monthly earnings (in Rs)	52	3,823	340	78	4,477	427
Husband's monthly earnings (in Rs)	242	11,075	487	424	12,970	1177

**Table A1a: Pre-pandemic Household-level (Weighted) Summary Statistics for India and Delhi**

	India (urban, 18-45, married)			Delhi (urban, 18-45, married)		
	count	mean	sd	count	mean	sd
Household size	29601	4.60	1.82	616	4.31	1.57
Hindu	29601	0.73	0.44	616	0.85	0.35
ST	29601	0.07	0.26	616	0.02	0.15
SC	29601	0.14	0.34	616	0.19	0.40
OBC	29601	0.40	0.49	616	0.25	0.44
Others	29601	0.38	0.49	616	0.53	0.50
Has children (age≤14)	29601	0.61	0.76	616	0.62	0.75
Has children (age<5)	29601	0.20	0.42	616	0.19	0.42

*Notes:* This data is obtained from the Periodic Labour Force Survey 2018-19 for urban, married individuals aged 18-45 years.

**Table A2: Attrition Checks by Baseline Characteristics between Pre- and Post-Covid19 Surveys**

	PRE-COVID19			POST-COVID19			DIFFERENCE	
	N	mean	se	N	mean	se	Mean	se
<b><i>Household characteristics</i></b>								
No. of household members	1034	5.2	0.05	745	5.16	0.06	-0.04	0.03
No. of years in current location	1034	28.56	0.43	745	28.29	0.5	-0.25	0.28
No. of children	1005	2.26	0.04	722	2.26	0.04	0.00	0.03
Has pucca house (0/1)	1034	0.96	0.01	745	0.96	0.01	0.00	0.00
Owns house (0/1)	1034	0.65	0.02	745	0.66	0.02	0.01	0.01
Has ration card (0/1)	1034	0.62	0.02	745	0.61	0.02	-0.01	0.01
Caste	1022			738				
<i>Scheduled caste</i>		0.43	0.02		0.42	0.02	-0.01	0.01
<i>Scheduled tribe</i>		0.02	0.00		0.02	0.00	0.00**	0.00
<i>Other backward caste</i>		0.32	0.01		0.33	0.01	0.01	0.01
<i>General</i>		0.23	0.01		0.24	0.01	0.01	0.01
Hindu (0/1)	1034	0.82	0.01	745	0.83	0.01	0.01*	0.01
Mean Asset Index	1034	1.78	0.02	745	1.81	0.02	0.03**	0.01
Assets in bottom 25th percentile	264	0.89	0.02	171	0.91	0.02	0.02	0.03
Assets in the top 25th percentile	254	2.61	0.01	180	2.59	0.02	-0.02	0.02
Household head from Delhi (0/1)	1032	0.35	0.02	743	0.35	0.02	0.00	0.01
<b><i>Individual characteristics</i></b>								
Wife's age (years)	1006	30.97	0.19	723	31.1	0.22	0.11	0.13
Husband's age (years)	1028	35	0.19	740	35	0.22	0.00	0.14
Wife's education (years)	1006	6.69	0.14	723	6.69	0.16	0.00	0.01
Husband's education (years)	1028	7.54	0.12	740	7.88	0.14	0.34***	0.01
Wife's occupation	1006			723				
<i>Wage labourer</i>		0.08	0.01		0.08	0.01	0.00	0.01
<i>Self Employed</i>		0.09	0.01		0.08	0.01	-0.01	0.01
<i>Salaried</i>		0.05	0.01		0.04	0.01	-0.01	0.00
<i>Housewife</i>		0.76	0.01		0.78	0.02	0.02	0.01
<i>Other</i>		0.03	0		0.02	0.01	-0.01	0.00
Husband's occupation	1028			740				
<i>Wage labourer</i>		0.25	0.01		0.24	0.02	-0.01	0.01
<i>Self Employed</i>		0.33	0.02		0.33	0.02	0.00	0.01
<i>Salaried</i>		0.37	0.02		0.37	0.02	0.00	0.01
<i>Other</i>		0.05	0.01		0.06	0.01	0.00	0.00
Wife is employed (0/1)	1006	0.20	0.01	723	0.18	0.01	-0.02*	0.01
Husband is employed (0/1)	1028	0.90	0.01	740	0.90	0.01	0.00	0.01
Wife's monthly earning (Rs)	1006	894	83	723	759	322	-135	64.29
Husband's monthly earnings (Rs)	1025	11,080	628	739	11,067	698	-13	450

*Notes:* The above figure shows the balance tests for household and individual characteristics used as baseline controls in the regression analysis. Significant at \*10%, \*\*5%, and \*\*\*1%. The variable “employed” shows the percentage of people currently in employment from total sample at the baseline and “monthly income” presents average unconditional monthly earnings.

**Table A3: Male employment effects, by occupation – Balanced Panel**

	(1)	(2)	(3)
	<b>Men's self-reported employment</b>		
Post-Covid19	-0.888*** (0.014)	-0.888*** (0.014)	-1.074*** (0.126)
Husband is labourer at baseline		-0.050*** (0.013)	-0.024 (0.022)
Husband is self-employed at baseline		-0.011 (0.012)	0.005 (0.016)
Wife is labourer at baseline		-0.039 (0.038)	-0.038 (0.028)
Wife is self-employed at baseline		-0.061 (0.042)	-0.084** (0.036)
Wife is housewife at baseline		-0.055* (0.032)	-0.047*** (0.014)
Post-Covid19*Husband is labourer at baseline			-0.052* (0.028)
Post-Covid19*Husband is self-employed at baseline			-0.032 (0.027)
Post-Covid19*Wife is labourer at baseline			-0.001 (0.079)
Post-Covid19*Wife is self-employed at baseline			0.046 (0.082)
Post-Covid19*Wife is housewife at baseline			-0.017 (0.066)
Constant	0.912*** (0.051)	1.012*** (0.059)	1.105*** (0.068)
Adj. R-sq.	0.79	0.79	0.79
Controls	Yes	Yes	Yes
Post-Covid19*Controls	No	No	Yes
N	1305	1305	1305

*Notes:* The dependent variable denotes the self-reported employment status of men pre- and post-pandemic. It is a binary variable, where 1 represents employed and zero otherwise. This regression analysis is performed on a dataset where each observation has two separate rows: one for pre-pandemic value and other for post-pandemic value. For this table, we use respondents who reported their pre-Covid19 main occupation as working (labourers, self-employed and salaried), resulting in 686 pre-pandemic and 690 post-pandemic observations, amounting to a total sample size of 1376 observations. Owing to missing values in independent variables, as shown in table above, the sample size further reduced to 1305. Here, the reference category for own and spouse's occupation is salaried. The baseline controls include low caste dummy, Hindu (religion) dummy, house type household head native state dummy, number of years living in a location, owns a ration card dummy, own flat dummy, number of household members, assets index, age and education of the respondents. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

**Table A4: Impact on Male Earnings, by occupation – Balanced Panel**

	(1)	(2)	(3)
	<b>Men's Monthly Earnings</b>		
Post-Covid19	-10520.898*** (799.891)	-10520.618*** (800.742)	2121.916 (7958.081)
Husband is labourer at baseline		-945.468 (798.916)	-196.069 (1583.752)
Husband is self-employed at baseline		196.927 (1138.199)	1525.081 (2264.299)
Wife is labourer at baseline		-837.904 (942.051)	-248.079 (1806.301)
Wife is self-employed at baseline		-2129.097** (963.817)	-2844.105* (1443.665)
Wife is housewife at baseline		-654.813 (808.803)	222.980 (1549.666)
Post-Covid19*Husband is labourer at baseline			-1505.894 (1637.844)
Post-Covid19*Husband is self-employed at baseline			-2680.012 (2353.637)
Post-Covid19*Wife is labourer at baseline			-1185.421 (2374.579)
Post-Covid19*Wife is self-employed at baseline			1428.696 (1740.955)
Post-Covid19*Wife is housewife at baseline			-1767.861 (2120.386)
Constant	6183.655** (2422.640)	7872.573** (3265.717)	1606.818 (7393.596)
Adj. R-sq.	0.14	0.14	0.16
Controls	Yes	Yes	Yes
Post-Covid19*Controls	No	No	Yes
N	1300	1300	1300

*Notes:* The dependent variable denotes the unconditional average monthly earnings of men pre- and post-Covid19 pandemic. The variable is continuous and takes value zero if the respondent is not employed. This regression analysis is performed on a dataset where each observation has two separate rows: one for pre-pandemic value and other for post-pandemic value. For this table, we use respondents who reported their pre-Covid19 main occupation as working (labourers, self-employed and salaried), resulting in 685 pre-pandemic and 685 post-pandemic observations, amounting to a total sample size of 1370 observations. Owing to missing values in independent variables, as shown in table above, the sample size further reduced to 1300. Here, the reference category for own and spouse's occupation is salaried. The baseline controls include low caste dummy, Hindu (religion) dummy, house type household head native state dummy, number of years living in a location, owns a ration card dummy, own flat dummy, number of household members, assets index, age and education of the respondents. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

**Table A5: Female employment effects, by occupation – Balanced Panel**

	(1)	(2)	(3)
	<b>Wife's Employment as reported by husband</b>		
Post-Covid19	0.001 (0.001)	0.001 (0.001)	-0.009 (0.009)
Husband is labourer at baseline		-0.010 (0.027)	-0.011 (0.027)
Husband is self-employed at baseline		-0.006 (0.021)	-0.005 (0.022)
Wife is labourer at baseline		-0.122 (0.089)	-0.122 (0.089)
Wife is self-employed at baseline		-0.357*** (0.094)	-0.362*** (0.094)
Wife is housewife at baseline		-0.713*** (0.070)	-0.713*** (0.071)
Post-Covid19*Husband is labourer at baseline			0.004 (0.003)
Post-Covid19*Husband is self-employed at baseline			-0.001 (0.001)
Post-Covid19*Wife is labourer at baseline			-0.001 (0.001)
Post-Covid19*Wife is self-employed at baseline			0.008 (0.008)
Post-Covid19*Wife is housewife at baseline			0.001 (0.001)
Constant	0.131 (0.120)	0.778*** (0.119)	0.782*** (0.120)
Adj. R-sq.	0.06	0.47	0.46
Controls	Yes	Yes	Yes
Post-Covid19*Controls	No	No	Yes
N	1302	1302	1302

*Notes:* The dependent variable denotes the employment status of women as reported by their husbands pre- and post-pandemic. It is a binary variable, where 1 represents employed and zero otherwise. This regression analysis is performed on a dataset where each observation has two separate rows: one for pre-pandemic value and other for post-pandemic value. For this table, we use respondents who reported their pre-Covid19 main occupation as working (labourers, self-employed and salaried), resulting in 690 pre-pandemic and 688 post-pandemic observations, amounting to a total sample size of 1378 observations. Owing to missing values in independent variables, as shown in table above, the sample size further reduced to 1302. Here, the reference category for own and spouse's occupation is salaried. The baseline controls include low caste dummy, Hindu (religion) dummy, house type household head native state dummy, number of years living in a location, owns a ration card dummy, own flat dummy, number of household members, assets index, age and education of the respondents. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

**Table A6: Impact on Mental health by Gender: Role of Social networks for Total number of friends**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Mental Stress</b>						
Wife	0.234*** (0.036)	-0.654* (0.372)	-0.726** (0.348)	-0.722** (0.347)	-0.310 (0.458)	-0.263 (0.525)
Total friends		-0.061** (0.025)	-0.064** (0.025)			
Wife*Total friends		0.098*** (0.029)	0.096*** (0.029)			
Employed			-0.644*** (0.172)	-0.648*** (0.171)	-0.657*** (0.171)	-0.640*** (0.180)
Wife employed			0.106 (0.087)	0.119 (0.090)	0.100 (0.091)	0.102 (0.087)
Home-friends				-0.065** (0.026)	0.084** (0.039)	-0.087 (0.086)
Wife*Home-friends				0.097*** (0.030)	-0.053 (0.051)	0.051 (0.135)
Work friends				-0.043 (0.065)	-0.214 (0.281)	-0.128 (0.198)
Wife*Work friends				-0.080 (0.134)	0.308 (0.726)	-0.185 (0.631)
Owns Mobile					0.352 (0.243)	
Wife*Owns Mobile					-0.308 (0.374)	
Owns Mobile*Home-friends					-0.162*** (0.044)	
Wife*Owns Mobile* Home-friends					0.164*** (0.059)	
Owns Mobile*Work friends					0.181 (0.290)	
Wife*Owns Mobile*Work friends					-0.418 (0.742)	
Home-friend*phone interactions						-0.177 (0.137)
Wife*Home-friend*phone interactions						0.255 (0.208)
Work-friend*phone interactions						0.022 (0.267)
Wife*Work-friend*phone interactions						-0.288 (0.947)
Constant	-0.117* (0.062)	0.375 (0.311)	0.411 (0.299)	0.411 (0.300)	0.004 (0.374)	0.495 (0.384)
Adj. R-sq	0.01	0.04	0.06	0.06	0.06	0.06
Controls	No	Yes	Yes	Yes	Yes	Yes
Wife*Controls	No	Yes	Yes	Yes	Yes	Yes
N	1266	1233	1225	1225	1225	1175

*Notes:* The dependent variable is a standardized mental health variable as described in Section 2b of the paper, where higher values indicate worse mental health. There are 737 observations for men and 529 for women, giving a total of 1266 observations, as shown in Column 1. “Home-friends” comprise of total number of friends (including duplication) based around home, including “parent”, “uncle/aunt”, “cousin/siblings”, “in-laws”, “friends”, “neighbour/friend from nearby lane/block”, and “others”, while “work friends” comprise of unique co-workers. In column 6, the variable “phone interactions” equals 1 if frequency of pre-pandemic phone interactions between respondent and their friend is weekly or more, and zero otherwise. This information is available for their four closest friends, as ranked by them. The baseline controls include low caste dummy, Hindu (religion) dummy, household head native state dummy, number of years living in a location, owns a ration card dummy, own flat dummy, number of household members, type of house dummy, assets index, age and education of the respondents. Post-pandemic employment status of men and women are also included as controls. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

**Table A7: Impact on Mental health, by Gender: Role of Post-Covid19 employment loss including controls**

	(1)	(2)	(3)	(4)	(5)	(6)
	<b>Mental Stress</b>	<b>Financial Stress</b>	<b>Health Stress</b>	<b>Nervous/ Anxiety</b>	<b>Depressed</b>	<b>Sleep disorder</b>
Wife	-0.263 (0.289)	-0.078 (0.076)	-0.160 (0.148)	0.104 (0.186)	-0.018 (0.176)	-0.197 (0.181)
Employed Post-Covid19	-0.610*** (0.173)	-0.243*** (0.062)	-0.102 (0.066)	-0.129 (0.078)	-0.244*** (0.075)	-0.140* (0.080)
Wife*Employed Post-Covid19	0.761*** (0.202)	0.287*** (0.067)	0.147* (0.079)	0.165* (0.086)	0.308*** (0.092)	0.163 (0.099)
Spouse Employed Post-Covid19	0.058 (0.093)	-0.019 (0.027)	0.081** (0.037)	0.052 (0.051)	0.023 (0.043)	-0.055 (0.056)
Wife*Spouse Employed Post-Covid19	-0.772*** (0.290)	-0.253*** (0.091)	-0.321*** (0.102)	-0.273** (0.112)	-0.173 (0.115)	-0.063 (0.112)
Constant	0.152 (0.303)	1.007*** (0.054)	0.930*** (0.131)	0.674*** (0.187)	0.738*** (0.136)	0.525*** (0.168)
Adj. R-sq	0.05	0.06	0.02	0.04	0.02	0.02
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Wife*Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	1225	1225	1225	1225	1224	1224

*Notes:* The dependent variable in column 1 is a standardized mental health variable as described in Section 2b of the paper, where higher values indicate worse mental health. The remaining dependent variables in columns 2-6 are the components of the standardized variable, as described in Section 2b. There are 737 observations for men and 529 for women, giving a total of 1266 observations. Owing to missing values in pre-Covid19 baseline controls, the sample size has truncated to 1225 observations. The baseline controls include low caste dummy, Hindu (religion) dummy, household head native state dummy, number of years living in a location, owns a ration card dummy, own flat dummy, number of household members, type of house dummy, assets index, age and education of respondents. Standard errors clustered at PSU are reported in parentheses. Significant at \*10%, \*\*5%, and \*\*\*1%.

## Questions on mental health in the pandemic survey

Physical Health > Mental health <i>Group relevant when: \${consent1} =1 and \${consent2} =1</i>	
<p>To what extent do you agree or disagree with the following statements.</p> <p>I feel nervous when I think about the current circumstances.</p>	<p>1 strongly agree</p> <p>2 agree</p> <p>3 indifferent</p> <p>4 disagree</p> <p>5 strongly disagree</p> <p>999 Don't Know/Can't say</p>
<p>To what extent do you agree or disagree with the following statements.</p> <p>I am worried about mine and my family's health.</p>	<p>1 strongly agree</p> <p>2 agree</p> <p>3 indifferent</p> <p>4 disagree</p> <p>5 strongly disagree</p> <p>999 Don't Know/Can't say</p>
<p>To what extent do you agree or disagree with the following statements.</p> <p>I feel stressed out about mine and my family's financial situation.</p>	<p>1 strongly agree</p> <p>2 agree</p> <p>3 indifferent</p> <p>4 disagree</p> <p>5 strongly disagree</p> <p>999 Don't Know/Can't say</p>
<p>To what extent do you agree or disagree with the following statements.</p> <p>I am feeling down, depressed or hopeless.</p>	<p>1 strongly agree</p> <p>2 agree</p> <p>3 indifferent</p> <p>4 disagree</p> <p>5 strongly disagree</p> <p>999 Don't Know/Can't say</p>
<p>To what extent do you agree or disagree with the following statements.</p> <p>I am having sleeping troubles (too little or too much)</p>	<p>1 strongly agree</p> <p>2 agree</p> <p>3 indifferent</p> <p>4 disagree</p> <p>5 strongly disagree</p> <p>999 Don't Know/Can't say</p>