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Emilia Barili; Veronica Grembi and Anna C. Rosso

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Women in Distress: Mental Health and the COVID-19 Pandemic^{*}

Emilia Barili[†] Veronica Grembi[‡] Anna C. Rosso[§]

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Abstract

Relying on a survey of more than 4,000 female respondents, we investigate the main determinants of women’s mental distress during the first wave of the COVID-19 pandemic in Italy. We focus on two groups of variables to capture both the health and the economic emergency: present concerns and future expectations. Our results show that the main predictors of mental health are future expectations, such as the fear of losing a job, which is more relevant than concerns related to the spread of the virus. Younger women (less than 35), those lacking a high school degree, and those working in education or in remote work with school-aged children are in most distress. Using a panel fixed effects model that includes respondents to a re-call run in February 2021, we show that there was no adjustment to the new normal. Finally, using data on gender norms, we show that where the role of women is conceived in a more traditional way, the level of mental distress as driven by future employment is lower, suggesting that women’s expectations for their role in society do play a relevant role in self-assessed well-being.

JEL Classification: I1, I12, J16

Keywords: Mental health, COVID-19, Expectations, Gender Stereotypes

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[†]University of Genoa.

[‡]Corresponding author: veronica.grembi@unimi.it. University of Milan

[§]University of Milan.

1 Introduction

The COVID-19 pandemic has, thus far, triggered two types of emergencies: a health care emergency, ranging from the fear of being infected to the inability of national healthcare systems to deal with the subsequent waves of patients, and an economic emergency, with massive layoffs due to the limitations to economic activities, the rearrangement of working conditions, and the restrictions to mobility. These two emergencies, joint and protracted in time, have brought unexpected and unprecedented disruption to everyday life. Among the consequences of this situation, repercussions for mental health appear to be the most ignored by policy makers so far. However, the only somewhat comparable and not-so-remote experience of the 2008 Great Recession has provided a plethora of evidence of both the mental health costs of economic downturns (*e.g.*, [Frasquilho et al. \(2016\)](#), [Dagher et al. \(2015\)](#), [Browning et al. \(2006\)](#), [Kuhn et al. \(2009\)](#)) and the need to target relief policies to specific population groups that tend to be more fragile than others in times of distress ([Hoynes et al. \(2012\)](#), [Bertoli et al. \(2021\)](#)).

In this paper, we contribute to the literature of mental health and COVID-19 by analysing the drivers of self-reported mental well-being on a specific population group, women, which is and will continue to be among the most penalized by the downturn of the economy due to the pandemic (*e.g.*, they are more likely to lose their jobs [Alon et al. \(2020\)](#), [Profeta \(2020\)](#), [Dang and Viet Nguyen \(2020\)](#)) and which tend, on average, to be more fragile as far as mental health is concerned (*e.g.*, [Astbury \(2001\)](#)). Exploiting a unique survey run at the end of the first wave of the COVID-19 pandemic (July 2020) on more than 4,000 women aged 20-65 in Italy—among the European countries most affected by the virus—we explore the relative role of two groups of drivers, present concerns and future expectations, in affecting mental well-being. To capture mental well-being we propose a new mental distress index (*i.e.*, a self-assessed statement of having very often or constantly experienced feelings of depression, anxiety, panic, fear that something bad could happen, or sleeping problems). Present concerns are defined as factors playing a role in the current experience of the respondent, from the incidence of the virus in the province of residence to changes in employment status pre or post first wave, while future expectations consist of

speculations about future events, such as the expected impact of the pandemic on access to health care or potential changes in employment conditions in the short run. From a policy-making perspective, it is crucial to understand the relative role of both drivers to define better priorities for intervention and shape communication strategies for the population.

Our results show that present concerns play a minor role compared to expectations about the future and that the latter do not necessarily coincide with concerns regarding future income. Concerns over the respondents' future employment status represent the lion's share (+48.1%) in explaining the variation in mental distress compared to similar concerns about the employment status of the partner (+25.6%). These findings cast doubt on the idea that respondents are mainly concerned about household wealth while elucidating the relevance of employment status *per se* and its links to respondents' social status.¹ More general expectations regarding the effects of the pandemic on the labour market (rather than personal conditions) and access to care explain a +31% and +24.6% increase in mental distress, respectively. The explanatory power of the controls related to expectations about the future is far larger than that of any other variable, sustaining the hypothesis that negative expectations have a major impact on respondents' mental health.

Examining present concerns, a one standard deviation increase in the incidence of the virus, as proxied by administrative data on the COVID-19 mortality rate, explains a +4.6% increase in mental distress, although the effect is not robust through all specifications and outcomes used in the analysis. For instance, it does not significantly explain variation in the consumption of drugs to fight anxiety or sleeping problems. Our results are robust when controlling for the economic sectors in which the respondent works and when restricting the subsample of respondents to those located in the northern regions, an area strongly affected by the health emergency during the first wave. On average, younger women (*i.e.*, below 35) and women lacking a high school degree face higher levels of distress, while regardless of the restrictions in access to childcare services and schools during the first wave, having

¹For instance, [De Quidt and Haushofer \(2016\)](#) provides a conceptual framework to explain the evolution of mental health status based on individual beliefs. They show that when exogenous shocks cause an agent to have pessimistic beliefs about the returns to her effort, she will exhibit symptoms of poor mental health (*e.g.*, depression, sleeping disorders). This may particularly apply in the occurrence of economic shocks, such as economic recessions or individual job loss.

(school-aged) children plays a minor role. Our results are robust to the use of extra controls, to restriction of the sample to women with a job in February 2020—before the first wave started—and to alternative definitions of the outcomes of interest through a principal component analysis approach. Finally, we show that our results are not simply the outcome of a temporary emergency, while respondents adjust to the new normal over time. Using the responses to a re-call run in February 2021 and implementing a model with respondent fixed effects, we show that the fear job loss is still a main predictor of mental distress even in the midst of the second wave of the pandemic.

To provide better insights into the role of future expectations on mental health, we test for the role of a potential mismatch between women’s aspirations and social norms using several measures of gender stereotypes that capture social norms at different territorial/individual levels (regional -20 units, provincial - 107 units, and individual level -from our survey of more than 4,000 individuals). In doing so, we follow the intuition behind the work of [Astbury \(2001\)](#), according to which the larger gender gap in ordinary mental conditions (*e.g.*, depression, anxiety) is a function of women feeling disempowered and lacking control over the major socioeconomic determinants like income, employment, and social position. Although there is not yet agreement on the validity of this hypothesis, by comparing the reported happiness of men and women since the 1970s, [Stevenson and Wolfers \(2009\)](#) show that women’s self-reported well-being has largely decreased, both in absolute terms and relative to men. [Stevenson and Wolfers \(2009\)](#) do not have a clear explanation of this phenomenon, but among several hypotheses, they argue that it could be mainly related to changes in women’s aspirations, which are no longer fulfilled only within the household, where they still need to play the larger role as caregivers.

Consistently, we expect that where gender norms are more conservative (*e.g.*, women are expected to be the main caregivers in the household), their mental health is worse, explaining a negative correlation between gender stereotypes and mental health. However, women living in a context with stronger stereotypes will find themselves experiencing a better fit with respect to social norms if they lose their job status, since they are then mainly expected to contribute to the household. In support of this argument, we find that gender stereotypes play a buffering role in dealing with stress over expectations of future

working status. For instance, while the fear of losing their job increases the level of mental distress among women by 54.4%, on average, a one standard deviation (0.88) increase in regional gender stereotypes (ISTAT) reduces the impact of job uncertainty by 10.3%.

With these new insights into the role of future expectations mediated by gender stereotypes, our paper contributes to the recent literature on the effects of the COVID-19 pandemic on mental health with respect to women. Recent studies, such as (Giuntella et al., 2021), mainly focus on the role of present concerns, finding that mental health is significantly affected by the measures introduced to contain the virus. In their work, they show that the strong decline in physical and mental health observed in the US is related to the implementation of mobility restrictions. In particular, poor mental health status registered after the introduction of restrictive measures does not relate to individual risk factors already present prior to the outbreak, while lifestyle disruption is a strong predictor of deterioration in mental health. Moreover, restoring physical habits to pre-pandemic levels in the short term does not automatically translate into a symmetric increase in mental health. These findings imply that the presence of physical restrictions alone cannot explain variation in mental health status. The deterioration of mental health due to stay-at-home orders in the US is also confirmed by Adams-Prassl et al. (2020). By running a survey on approximately 8,000 respondents, they provide evidence that women were more affected than men during this period. However, they exclude the relationship between the potential channels for these more adverse outcomes and present concerns such as financial distress, an increase in childcare responsibility, or local intensity of COVID-19 outbreak.² Oreffice and Quintana-Domeque (2020) document that after the three-month lockdown in the UK, women were substantially more concerned about the health emergency as well as about the economic consequences of the pandemic than men. This latter concern was linked to women’s higher propensity to hold COVID-19-risky employment (*e.g.*, healthcare or NHS worker, being physically closer to others). Analysing data from the UK Household Longitudinal Study, Proto and Quintana-Domeque (2020) confirm a deterioration in mental health as a consequence of the pandemic,

²Financial difficulties are defined using information on whether the respondent had trouble paying their usual bills and expenses, worked fewer hours, earned less than usual, or had to change their work patterns to care for others in the week before the survey.

with these negative results being driven by women, irrespective of their ethnicity, while Davillas and Jones (2021) find that the largest increase in psychological distress during the first wave is attributable to younger women. Similar results are confirmed for Italy by Barili et al. (2020), who, relying on a unique survey of healthcare workers, observe higher levels of self-reported mental distress among female workers.

The paper is organized as follows. Section 2 describes the main features and timeline of COVID-19 in Italy and the approach that we use to proxy its spread across Italian municipalities. Section 3 provides a description of our dataset and the outcomes of interest. Descriptive evidence is discussed in Section 4. Section 5 presents the econometric specification and the main results, while robustness checks are described in Section 6. Section 7 defines the role of gender stereotypes, and section 8 concludes the paper.

2 The First Wave of COVID-19 in Italy

The first COVID-19 wave in Italy officially started with the declaration on January 31st of a state of emergency. On February 23rd, the Italian National Health Service reported that two hot spots of COVID-19 cases were present in two northern regions, Lombardy and Veneto, and after February 24th, it introduced stringent measures to contain the epidemic starting from these areas. Measures included quarantining municipality clusters, imposing strict restrictions on people’s movements, and the temporary closure of schools, shops, and industrial activities.³ On March 4th, the number of registered deaths from COVID-19 reached 100. For the first time, in the Ministerial Decree of 4 March 2020, the government promulgated a series of nationwide measures to contrast and contain the spread of the epidemic, declaring the entire country a red zone on March 9th. A dramatic restriction to economic activities and mobility was enforced across the whole country, including the closure of all schools and universities, with the possibility to attend online classes only.⁴ These measures were extended to May 2020. The reopening of many activities took place after May 18th,

³<http://www.governo.it/it/provvedimento/provvedimento-a3401322202203/14166>

⁴The closure of schools and universities follows the same timeline as the enlargement of the areas under restriction. Students were not allowed to enter buildings until September 2020 (start of the new scholastic year). Formal childcare activities were required to follow the same rule.

but mobility across regions was not allowed until June 3rd. On the economic side, the Italian government initially banned the firing of employees starting in March 2020 for 60 days (Decree n. 18/2020) and then extended the firing ban until March 2021. Altogether, the lockdown measures implemented by the Italian government during the first wave lasted for 10 weeks and had no comparison, in terms of their strictness, within those of other European countries with the exception of Spain.

As apparent from Figure 1, the northern part of the country was the most heavily impacted, with remarkable regional variations in the incidence of COVID-19. In exploring the geographic-specific intensity of the COVID-19 outbreak, we primarily consider the COVID-19 mortality rate adjusted for demographic differences between provinces (Figure 1 (a)), which is a standardized measure computed on administrative data by Istat and Iss (2020). We show that alternative measures of mortality provided by Istat and Iss (2020) provide substantially the same picture for the local intensity of the outbreak (Figures 1 (b) and 2).⁵ Finally, Figure 11 provides a comparison capturing the severity of the outbreak relative to the timing of the interviews.⁶

3 The Survey

We rely on a unique survey conducted in July 2020, right at the end of the first wave of the pandemic in Italy, on women in the age range 20-65.⁷ The questionnaire was administered online from July 15th to July 31st through email invitations, and respondents could participate via computer-assisted web interviews (CAWIs). On average, it took 20 minutes

⁵Alternative measures consist of the share of COVID-19 deaths over the total number of deaths registered in the relevant period and location and the percentage variation in the number of deaths comparing those registered in 2020 with the average value registered in the period 2015-2019. We consider the latter to be the more comprehensive view of the dynamics of the first wave of the COVID-19 epidemic. As shown in Figure 2, the January-February values decreased compared to the previous year, while variations above 100% were registered from March 2020 with remarkable territorial heterogeneity.

⁶Since the first wave of interviews was performed in July 2020 and the second wave in February 2021, *Wave1* focuses on the months January-June 2020, while *Wave2* focuses on the months January-November 2020. At the time of the analysis, they represent the most updated official data available.

⁷See Appendix C for more details on the survey conducted by the market survey company Demetra.

to complete the survey. After excluding inconsistent respondents (477 observations), we restrict our analysis to women not retired and who held at least one job in their lifetime. This selection allows us to focus on women who potentially have some labour market attachment and self-identify through an out-of-the-household dimension. The final analysis is performed on a sample of 4,136 respondents.

The design of the sample guarantees that it is representative of the actual population by geographical area and age group. The survey privileges the representativeness of the regions that have been most affected by the pandemic (*i.e.*, northern regions) while guaranteeing representativeness at the macro-area level for the centre and the south.⁸ A comparison between the women in our sample and the actual distribution of the female population registered by the National Institute of Statistics (ISTAT) as of January 1st, 2020, is available in Table C1. The representativeness of the geographical areas is strong, while our sample is slightly younger (on average by 2 years) than the actual population.

The survey belongs to a larger research project investigating women’s health and working conditions, gender stereotypes, and perceptions of domestic violence. For the scope of this analysis, we focus on a subset of questions, where we ask about the socioeconomic status of the respondent (*e.g.*, marital status, education level, if they have children), the self-assessed health status, how the pandemic has impacted the working conditions of the respondent and her partner (if any), together with alternative measures of self-reported mental health and gender stereotypes.⁹

Since the literature has well documented the gender gap in mental health and the differential impact of recessions on men and women (*e.g.*, [Dagher et al. \(2015\)](#), [Adams-Prassl et al. \(2020\)](#), [Oreffice and Quintana-Domeque \(2020\)](#), [Proto and Quintana-Domeque \(2020\)](#)), focusing on women only allows us to dig deeper into the specific determinants of their (self-assessed) mental health.

Our analysis exploits one main outcome of mental health, *Mental Distress*, and an alternative outcome, *Concerns*, that captures potential causes of distress. In addition, we

⁸See Figure 3 for a description of the Italian macro-areas

⁹Descriptions of the survey questions used appear in Appendix C. See [Barili et al. \(2021b\)](#) for more details on the sections devoted to domestic violence.

analyse the role of present concerns and future expectations on a measure of the self-reported use of medications to fight anxiety or sleeping problems (with or without medical indication), *Drug Consumption*. *Drug Consumption* enriches the analysis, shifting attention from the perception of one’s mental status to the actions taken (*i.e.*, drug consumption) in response to such perception. All the measures are based on answers to our questionnaire, as shown in Table C2. When answering, respondents are asked to evaluate their experience during the first wave of the pandemic, which, in Italy, means the period from the end of February 2020 to June 2020.

3.1 Main outcomes

Our main outcome of interest, *Mental Distress*, captures self-assessed mental status. As described in Equation 1, the mental distress of woman i is defined as the linear sum of a set of n dummies, D_{ni} , which in the case of *Mental Distress* is equal to the following 5 conditions: *Depression*, *Anxiety*, *Fear*, *Panic*, and *Sleeping Problems*. The value of each dummy D_{ni} is based on the self-reported frequency of the 5 conditions (Q_{ni}): dummy D_{ni} is equal to 1 when the respondent declares to have felt *very often* or *always* each specific status Q_{ni} , 0 otherwise. This means that *Mental Distress* ranges from 0 (*i.e.*, no mental distress) to 5 (*i.e.*, severe mental distress).¹⁰

$$Mental\ Distress_i = \sum_{n=1}^5 D_{ni} \text{ where } \begin{cases} D_{ni} = 1 & \text{if } Q_{ni} \geq \text{“very often”} \\ D_{ni} = 0 & \text{if } Q_{ni} < \text{“very often”} \end{cases} \quad (1)$$

Analogously, we have defined *Concerns*, our second outcome of interest, to capture conditions that are potential sources of distress. Some of these are more related to health conditions (*i.e.*, *personal health* and *relatives’ health*), others to daily life interactions (*e.g.*, *partner relationship* and *stress at the workplace*), and others to economic factors *financial*

¹⁰Respondents are asked to score all specific statuses on a 1 (*never*) to 5 (*always*) scale. A detailed description of the variables is available in Tables A1 and A2, while the original questions are reported in Table C2.

troubles. Overall, we consider 7 types of concerns (in addition to the aforementioned, *nobody to talk to*, and *family of origin relationship*). On the basis of Equation 1, *Concerns* ranges from 0 (*i.e.*, not concerned) to 7 (*i.e.*, severely concerned).

Table 1 shows a correlation of 0.6 between *Mental Distress* and *Concerns*, confirming, as expected, the strong relation between the two indexes. In Section 6, we also define the main outcomes with alternative specifications.

Respondents reported an average level of *Mental Distress* equal to 1.35 and an average level of *Concerns* equal to 1.90. This means that, on average, respondents suffered from 1 cause of mental distress almost constantly and struggled, with equal intensity, with almost two causes of concern. Among the single causes of severe mental distress (*i.e.*, the individual D_{ni}), we observe that 34% of respondents declared they suffered from *Anxiety*, 32% experienced *Fear* that something bad was about to happen, 30% reported *Sleeping Problems*, 24% experienced *Depression*, and 15% had a *Panic* attack during the first wave of the pandemic. To provide a sense of this number, we compared them with Italian official statistics. A basic comparison shows our shares as remarkably high: according to Istat (2018), the share of depressed individuals in the Italian population was approximately 5.4% as of 2015. However, official numbers only report the share of the population that received a medical diagnosis of depression, which means a formal medical intervention. It is reasonable to expect a significant difference between perceptions and formal diagnoses. In our questionnaire, we ask whether they felt depressed or hopeless during the first wave, which does not necessarily mean that respondents looked for medical support, particularly given the existing stigma around help-seeking in case of mental disorders (Link et al. (2001)). A similar difference is observed in the 2013 ISTAT Survey on “Health Conditions”: the data show that only 9.8% of women aged 20-65 declare having ever experienced depression, while the share is higher (22.7%) when asked if they have felt depressed over the 4 weeks before the interview.

Among the components of *Concerns*, respondents were mainly concerned for their *relatives’ health*, which *very often* or *always* affected 51% of them, followed by 34% concerned about both *personal health* and *financial troubles*, while only 15% were very concerned for the *partner relationship* and 16% for the *family of origin relationship*. *Stress at the workplace* was a serious concern for approximately 20% of the respondents.

3.2 Drug Consumption

We additionally evaluated the respondents’ mental health by asking if they had used any drugs to deal with anxiety or sleeping problems (with or without medical prescription), setting the dummy *Drug Consumption* equal to 1 if they had. The rationale is to test whether our results are driven mainly by self-perception or whether they are also related to a behavioural response.

In our data, *Drug Consumption* assumes the value 1 for a quarter of the respondents, pointing to a diffuse use of drugs to deal with mental health issues during the first wave. The direction of the correlation between *Drug Consumption*, *Mental Distress*, and *Concerns* is not obvious. It could be that the higher the use of drugs, the better one’s self-assessed mental health, because using drugs may, for instance, reduce sleeping problems or anxiety. However, in our sample, the correlations are positive: the correlation coefficient between *Drug Consumption* and *Mental Distress* is 0.28, while between *Drug Consumption* and *Concerns*, it is 0.23 (see Table 1).

4 Descriptive Analysis

One of the main features of the first wave of the pandemic in Italy was that the incidence and mortality of the virus varied across different Italian regions, with the majority of cases and casualties occurring in the north. Hence, we browse our data, comparing means between the Italian macro-areas (*i.e.*, north, centre, and south and islands) to check if there is any geographical trend in the variables of interest. In particular, we refer to our outcomes and to two sets of proxies we use to capture present concerns and future expectations. We proxy present concerns with reference to both the economic and health emergency using the provincial-level *COVID-19 mortality rate* with having lost a job or endured some actual financial distress during the first wave of the pandemic and with having regarded compliance with stay-at-home orders as extremely important, respectively. We proxy future expectations with the fear of losing one’s job, the fear that the partner—if any—will lose their job, and the general expectations regarding the negative impact of the pandemic on the labour market and access to healthcare.

While the average *COVID-19 mortality rates* exhibit large and statistically significant differences between macro-areas (Figure 4-Panel a), this is not the case for the outcomes *Mental Distress* (Figure 4-Panel b), *Concerns* (Figure 4-Panel c), and *Drug Consumption* (Figure 4-Panel d). *North* and *centre* do not exhibit statistically significant differences in the average values of the outcomes, while *south and islands* reports statistically higher levels of *Mental Distress* and *Concerns* and a lower *Drug Consumption* compared to the other macro-areas.

The evidence from our survey is an accurate match with the distribution of mental distress in the European Health Interviews Survey (EHIS) published by ISTAT in 2018 (Istat (2018)). According to these data, the incidence of adverse mental health status (*e.g.*, depression) is systematically higher in southern regions than in northern regions. Looking at data on prescribed medications against anxiety, northern regions report higher levels of consumption of antidepressants with respect to the south, and these were increasing between 2013 and 2017. The different geographic distribution for mental health status and drug consumption could be explained by several factors, including cultural attitudes affecting the under- or over-stating of personal health conditions.¹¹ The same is true for differences in present concerns and future expectations regarding the economic situation. Hence, we plot in Figure 5 the distribution of the measures for economic distress: there are no major differences in having lost or fearing losing one’s job, while the actual experience of financial distress seems to matter more in the central and southern regions than in the northern regions.¹²

¹¹As recently documented by Schneider et al. (2012), cultural norms affect the reporting of subjective measures of current health status. This relation is likely to be driven by how this perception is affected by personal attitudes or external reference points (Jürges, 2008) may also result in a different propensity to proceed with a formal medical diagnosis and to start pharmacological therapy (Link et al. (2001)).

¹²It should be noted that only a small portion of the respondents actually lost their jobs: these were, in fact, individuals on temporary contracts on *cassa integrazione*—a temporary redundancy program. During this period, the government introduced a firing ban; therefore, newly unemployed individuals would either be those in *cassa integrazione straordinaria* or individuals whose contract expired during this period and was not renewed. The Italian *Cassa Integrazione* is a short-term work program that (partially or fully) subsidizes hours reductions (temporary redundancy), replacing approximately 80% of earnings forgone due to hours not worked, up to a cap (see Giupponi and Landais (2020) for more details on the program).

In Figure 6, we show that the largest incidence of severe mental distress is associated with future expectations (personally losing one’s job or a partner losing their job) more than present concerns (of having lost one’s job). Figure 7 reports the same exercise for women with or without (school-aged) children, finding no significant differences in the average incidence of mental distress within the macro-area. Finally, when we look at future expectations on the general impact of the pandemic on the labour market and access to healthcare, these measures could capture background characteristics of the living context of the respondent, but Figure 8 shows a lack of statistical significance with respect to the impact on the labour market, while respondents located in the northern regions look less concerned about future access to healthcare than respondents in the south. Based on this descriptive evidence, it is important to control for geographical fixed effects in the econometric model.

5 Econometric Strategy and Results

The analysis is based on the estimation of Equation 2, where we aim to evaluate, for each respondent i residing in macro-area a , the role of multiple controls in explaining the $Outcomes_{ia}$. We primarily discuss the results obtained for the main outcome, *Mental Distress*, and for *Concerns* and *Drug Consumption*.

$$Outcomes_{ia} = PresentConcerns'_{ia}\alpha + FutureExpectations'_{ia}\beta + \delta COVIDmortality_p + \gamma Gdp_p + SES'_{ia}\sigma + Employment'_{ia}\pi + \nu_s + \tau_a + \epsilon_{ia} \quad (2)$$

In addition to $COVIDmortality_p$, which captures the severity of the outbreak at the provincial level p , $PresentConcerns_{ia}$ is a vector of controls for individual-level present concerns, while $FutureExpectations_{ia}$ is a vector that includes proxies for future expectations, as explained in Section 4. Other controls consist of socioeconomic measures (SES_{ia}), such as education and age, characteristics of employment status of the respondent and her partner, if any, ($Employment_{ia}$), such as having a permanent or temporary contract, and Gdp_p in the province of residence. In our preferred specification, we additionally control for the sec-

tor of employment of the respondent (ν_s).¹³ All specifications include macro-area, τ_a , fixed effects—north west, north east, centre, south and islands—to take care of geographical time invariant characteristics, for example, different cultural tendencies to over- or under-assess your mental health or the average quality of healthcare services. Standard errors are clustered at the region of residence (20 units) level. Table 2 lists all the controls used, while Table A3 provides a more accurate description of each variable.

Among the SEs_{ia} , we recover information on the size of the respondent accommodation and her religious identity. The size of the accommodation (*More100sqm*) is a dummy that is equal to 1 if the respondent lives in *More100sqm* and 0 otherwise.¹⁴ This measure proxies individual wealth, since, all else being equal, larger accommodations might capture higher wages. This measure also controls for the potential stress experienced within the household, simply arising from living-space constraints during the extremely stringent stay-at-home orders enforced during the first wave of COVID-19 in Italy having, *per se*, direct effects on mental health.¹⁵ Finally, we control for the religiosity of the respondent (dummy *religious* equal to 1 if a religious person), as it has been shown that religiosity could act as a coping mechanism during stressful periods (Barili et al. (2021a), Bentzen (2020)). However, during the first wave, in-presence religious services were banned, a factor that could contribute to a worsening of mental health conditions in religious types. In Table 3, we present the results for the full sample on *Mental Distress*, *Concerns*, *Drug Consumption* with (preferred

¹³We estimate two models, one without *Employment Sectors* fixed effects but controlling for a public sector dummy (*public sector*) constructed on the basis of one response and a second model with *Employment Sectors* fixed effects. Broadly speaking, those employed in the public sector are less likely to face layoffs, while different sectors were differently affected by the crisis, with possible differential consequences on mental health.

¹⁴The threshold considered, 100 sqm, represents the median value of accommodation size in our sample, and it is surprisingly representative of the average house dimension in Italy, which is approximately 117 sqm (MEF (2019)).

¹⁵In March-May 2020, individuals were strongly advised to stay at home unless they could prove they needed to leave for justified reasons (*e.g.*, healthcare workers going to work). Leisure activities, including having a walk, were only allowed within 200 meters from home, either alone or one parent at a time with children. Similar restrictions were imposed on going out for groceries, and being caught in contempt of these restrictions resulted in a 400 euro fine. In this context, accommodation size did play a relevant role.

specification) and without economic sector fixed effects (sectoral coefficients are reported in Appendix Tables [A4](#) and [A5](#)).

Looking at present concerns, the results show a positive effect of provincial COVID-19 mortality rates: a standard deviation increase in the mortality rate (*i.e.*, 61 casualties per 100,000 inhabitants) increases the average baseline of *Mental Distress* by 4.6% ($((0.001*61)/1.34)$) and that of *Concerns* by 3.2% ($((0.001*61)/1.90)$). *Drug Consumption* for anxiety or sleeping problems is not statistically affected. Even if a small minority of the sample (approximately 3% of the respondents) lost their job during the first wave, this event would have increased the level of *Mental Distress* by 14.5%, yet this effect is only slightly significant. Partner remote working during the first wave increases *Mental Distress* and *Drug Consumption* by 8.1% and 25.1%, respectively. Finally, those who judged compliance with the stay-at-home measures as extremely important tended to report a higher level of *Concerns* (+15.8%) and lower levels of *Drug Consumption* (-21.9%).

However, the most relevant predictors, which are robust across all specifications and outcomes, are those related to future expectations. The explanatory power of these groups of variables is clearly larger than that of the other variables. This finding supports our hypothesis that uncertainty about the future plays a major role in mental health. Specifically, the fear of losing employment status for either the respondent or her partner has a major impact: the idea of losing one's job increases *Mental Distress* by 48.1% in the baseline, the level of severe *Concerns* by 43.3%, and *Drug Consumption* by 33.2%. When the fear is related to the partner's employment, the impact is lower, increasing *Mental Distress* by 25.6%, *Concerns* by 24.8%, and *Drug Consumption* by 25.1%. General uncertainty about future conditions in the labour market increases *Mental Distress* by 31% and severe *Concerns* by 22.8% with no effects on *Drug Consumption*. Similarly, uncertainty about future healthcare access increases *Mental Distress* and *Concerns* by +24.6% and + 31.2%, respectively.

In contrast to expectations, having at least one child does not affect self-reported mental health or concerns but positively affects drug consumption even if the latter is only marginally significant. Having school-aged children mildly affected the reporting of some form of mental distress during this period. Age group explains a significant portion of the variation in both *Mental Distress* and *Concerns*: on average, younger women report higher levels of mental

stress and concerns. In our preferred specification, compared to women in the 20-35 age group (baseline category), women aged 35-44 report 22.2% (29%) lower levels of average mental distress (concerns), while for the 45-55 age group, the reduction is even higher, at -35.7% (-29.9%), ultimately reaching -40.1% (-36.5%) for women older than 55. This result is in line with the recent literature (Bordalo et al. (2020), Davillas and Jones (2021)), which identifies younger cohorts as those experiencing the largest deterioration of mental health due to COVID-19. Among the predictors of higher socioeconomic status, such as accommodation size, education level and marital status, only being a high school graduate negatively affects the average level of *Mental Distress* (-21.2%), of *Concerns* (-19.7%) and of *Drug Consumption* (-19%) compared to high school dropouts (the excluded group). Marital status does not show any interesting pattern, while being religious only matters for the reported level of severe *Concerns*, increasing them by 14% in the baseline. This result is probably driven by the ban on in-presence attendance at religious functions. Women unemployed before the outbreak of the pandemic have 24% higher *Mental Distress* with respect to the employed, but there are no systematic differences in *Concerns*. This group also shows 21.9% lower *Drug Consumption* with respect to the employed. Women whose partner had a permanent-contract job before the pandemic have lower *Mental Distress* (-21.2%) and *Concerns* (-7.9%) than women with partners in temporary jobs. In Appendix B, we use the estimated coefficients in our baseline to simulate the role of both present concerns and future expectations conditioned by sociodemographic group to provide a further analysis of the most relevant dimensions in explaining variations in mental distress.

In Table 4, we restrict our analysis to women residing in the north. The results of Table 3 are confirmed and in some cases are strengthened. In particular, the fear of losing one's job increases *Mental Distress* by 57.2%, the level of *Concerns* by 46.9% and *Drug Consumption* by approximately 29.1.¹⁶ For the results on the full sample, fear of the partner losing their job plays a role, albeit a smaller one, in *Mental Distress* and *Concerns*, increasing them by 31% and 24.8%, respectively, but a larger role in *Drug Consumption*, increasing the use of medication by 31.9%. Additionally, the impact of future expectations

¹⁶These percentages are evaluated using the means of *Mental Distress*, *Concerns*, and *Drug Consumption* in the northern regions, which are respectively 1.25, 1.8, and 0.26

regarding the impact of the pandemic on the labour market and access to healthcare are confirmed: expectations regarding the negative impact on the labour market are associated with +24.5% in *Mental Distress* and +18.7% in *Concerns*. Expectations regarding repercussions in access to healthcare increase *Mental Distress* by 33% and *Concerns* by 38.8%. The results for general expectations about labour market conditions and access to healthcare accurately reflect pre-existing structural differences across geographical areas that emerged during the first wave: higher confidence in northern regions in the ability to recover from the economic emergency given their more stable labour market and less confidence in the healthcare system, which struggled during the first wave. These structural differences seem to shape future expectations on these two dimensions, ultimately affecting mental health in different ways. In contrast to the results on the full sample, actual job loss and partner remote work marginally correlate with the level of *Concerns*.

5.1 Single Causes of Mental Distress and Concerns

In Table 5, we decompose the outcome *Mental Distress* into the 5 dummies used to construct the index (*Depression*, *Sleeping Problems*, *Anxiety*, *Panic*, and *Fear*). First, unemployed women are more likely to report having experienced all 5 statuses. The effect of job loss due to the pandemic on mental health seems to be driven by having experienced some panic attacks during the first wave. Future expectations measured either by the fear of losing one’s job, fear that the partner loses their job or uncertainty about the labour market or access to the healthcare system are positively correlated with all the determinants of the mental distress index. The fear of losing one’s job is the main driver and has remarkable effects on all outcomes: it increases the probability of feeling (always or very often) depressed (by 58.4%), having sleeping problems (by 40.5%), being anxious (by 42.8%), having a panic attack (by 58.1%) and being afraid that something bad is about to happen (by 48.2%). When compared to the fear that the partner could lose their job, it increases the probability of *Depression* by 19.6%, *Sleeping Problems* by 28.8%, *Anxiety* by 16.2%, *Panic* by 46.9%, and *Fear* by 26.8%. A similar trend is confirmed for the main causes of concerns, as shown in Table 6: the fear of being unemployed shows a positive correlation with all the sources of concerns, while fear about the partner’s job has a smaller effect. This is an interesting result

per se, since if it were a pure financial concern at the household level, the two coefficients should be associated with a very similar impact, also given that in Italy, women are on average paid less than men.¹⁷

5.2 Sector of employment

Finally, the differential impact of the economic sector dummies deserves attention. In the first specification, we control for the dummy *Public Sector*, which is 1 for civil servants. As shown in all the above tables, this variable positively and significantly relates to the level of mental distress and concerns. A more careful analysis of this group of respondents shows that the majority of civil servants in our dataset work in either education or healthcare. Not surprisingly, workers in education had to switch to a completely new method of work, as schools were closed and teaching was moved online. A lack of training or access to appropriate technology contributed to the increase in the level of mental stress among this group. This emerges in the results on sectoral dummy coefficients, as reported in Appendix A, according to which the dummy *Education* positively and significantly affects the level of mental distress but not the level of concern (Tables A4 and A5). In Appendix Tables A6 and A7, the analysis of the single causes of distress shows that respondents working in *Education* and *Healthcare* were more likely to experience *Anxiety* and *Fear* of negative events, while respondents in *Services* had a higher probability of being *Depressed*. Respondents in both *Education* and *Healthcare* were less likely to be concerned about future *Financial Problems*, as in the public sector, layoffs are very unlikely. At the same time, workers in the *Healthcare* and *Retail* sectors were more likely to be concerned about stress in the workplace, as both sectors were active during this period (see Appendix A: Table A7).

¹⁷Data from Eurostat report that the gender pay gap in Italy is approximately 5%. The statistics report the unadjusted gender pay gap, calculated on the 2018 wages for enterprises with 10 or more employees.

6 Robustness Checks

6.1 Extra Controls, Alternative Outcomes, and Sample Restriction

We enrich Equation 2 by including two additional controls: *Financial Distress* is a dummy equal to 1 if the respondent declares having endured any financial distress during the first wave, while *Self-Assessed Health* reports the self-reported health status graded over a 1 (extremely poor) to 5 (very good) range. The results presented in Table A11 show that the main predictors are not substantially affected by the inclusion of the two controls.

Our baseline results are also robust to alternative definitions of the main outcomes. We rescale *Mental Distress* and *Concerns* on the basis of the N factor (*i.e.*, $MH_{2i} = MH_i/N$. $N=5$ for *Mental Distress*, while $N=7$ for *Concerns*). Additionally, two new indexes are computed based on a principal component analysis of the original answers Q_{ni} . Correlations with the original indexes are above 0.99 for all indexes. The results presented in Table A12 confirm that predictors related to future expectations are by far the most explicable factors in predicting a deterioration in mental health.

Finally, we restrict the analysis to the sample of women employed in February 2020 before the first wave of the pandemic. The results confirm expectations: in this sample, the results are stronger as far as future expectations are concerned, as shown in Tables A8 and A9. When restricting the analysis only to those employed in February 2020 (*i.e.*, pre COVID-19), workers in *Healthcare* exhibit large and significantly higher probabilities of reporting *Mental Distress* and *Concerns* (Table A9).

6.2 The Second Wave

A second wave of the COVID-19 pandemic affected Italy starting in October 2020. By the very beginning of November, new restrictions to mobility were implemented, with a curfew from 10 pm to 5 am, and regions were assigned to a system based on 3 colours depicting COVID-19 severity and calculated based on infected and hospitalized patients. Colours ranged from yellow, the lowest severity with fewer restrictions, to red, the highest severity,

with orange being the intermediate state, although common restrictions were implemented independently of the colour, such as the curfew. It was established that every other week, the colour would be updated and that a region had to follow the rules of the assigned colour for at least two weeks. All regions had to follow the same rules during the holiday season from December 23rd to January 7, 2021, which imposed stronger restrictions. From November 3rd to February 15, some regions, such as Abruzzo (south), changed colour 7 times, while Molise (south) changed colour only once. Some regions never experienced a red week, such as Lazio (centre), while others, such as Bolzano (north east), spent more than a month in red.

To analyse changes between the first and second waves, in February 2021, we re-called a portion of the women sampled in the first wave, asking 8 questions overall, 6 of which referred to their mental distress status, level of concerns, consumption of drugs to fight anxiety and sleeping problems, the health status, and concerns over the personal employment situation and the employment situation of her partner, as well as the experience of any financial distress. We collected 553 responses and generated a panel.¹⁸ The distribution of the responses is quite balanced across geographical areas (54% in the north, 21% from the centre, and 25% from the south) and across ages (age below 35, 23%, age 35-45, 24%, age 45-55, 32%, and age above 55, 21%). Distributions of the main control variables are balanced, as we show in Table A13, which means that our second wave sample is quite representative of the first wave population on observable characteristics.

Using a sample for the second wave allows us to address several issues. First, we wanted to analyse whether the mental distress endured during the first wave faded away as the unprecedented state of emergency became the new normal. Second, using a panel of respondents, we can more easily disentangle unobservable individual characteristics and mental conditions pre-COVID-19 pandemic from the role of present and future concerns in mental distress, using respondents' fixed effects. In Figure 9, we show the distributions of

¹⁸We kept the re-call to a minimum number of questions due to financial constraints. Therefore, we decided to focus on those questions where the response might have changed in the 7 months since the first survey: for instance, we did not ask if the respondent had lost their job, since the ban on layoffs was renewed until March 2021, while we preferred to ask for the experience of financial distress.

the main outcomes of interest in the panel. The level of mental distress slightly increased, but the 95% confidence intervals between the first and second waves overlapped, showing no differences between the two periods, which was also confirmed by *Concerns*. However, a remarkable increase is recorded in drug consumption: the use of drugs to fight anxiety and sleeping problems grew mainly in the south, as shown in Figure 10. This result is important because the incidence of the second wave was more homogeneous than that of the first wave, affecting the south and north equally.

$$Outcomes_{iw} = \lambda CovidDeath_{pw} + \beta_1 Fear\ to\ lose\ the\ job_{iw} + \beta_2 Fear\ partner\ loses\ the\ job_{iw} + \omega Financial\ distress_{iw} + \iota Health\ status_{iw} + \alpha_1 Red\ weeks_{rw} + \alpha_2 Orange\ weeks_{rw} + \alpha_3 Yellow\ weeks_{rw} + \lambda_i + \tau_w + \epsilon_{iw}$$

We use a fixed effects model to estimate Equation 3 on the sample of respondents to both waves, where the main controls vary at the individual i and wave w level, but some, such as the COVID mortality rates, vary at the provincial p level, while the number of weeks in a specific colour varies at the regional r level. Results are reported in Table 7. There are at least 3 interesting findings from this analysis. The first is that there is no wave effect, which means that we do not detect, on the basis of our data, a significant effect of answering in July 2020 rather than February 2021. This means that the effect we estimated in July 2020 did not fade away toward the end of the emergency. A second finding is related to the positive role played by the fear of losing one's job only in the level of mental distress: future expectations do appear to play a significant role in the mental health of the respondent, while present concerns play a role in the level of distress but also in the level of concerns. We read this second result as evidence that concerns might better be defined by present concerns, while mental distress is defined by both the present and the future of an individual. Finally, the health emergency, as captured by the incidence of COVID-19 mortality, which we count among the present concerns, does not play a significant role at any level.

7 Social norms and self-assessed mental health

Focusing on present concerns and future expectations, we provide further insights into their power to affect individual mental health by undertaking a heterogeneity analysis over alternative measures of gender stereotypes. The rationale is to test, in the spirit of [Stevenson and Wolfers \(2009\)](#), whether a mismatch between women’s aspirations and societal expectations affects women’s self-reported well-being. By means of alternative measures of gender stereotypes, we investigate the possible direct relation between the conventional role of women in society, defined by social norms, and our outcomes of interest. Additionally, we investigate how social norms interact with present concerns and expectations for the future. We test for the underlying hypothesis that in contexts with higher gender stereotypes, in which women are expected to follow the more traditional roles of childbearer and caregiver and men are supposed to be the breadwinner, a woman’s fear of losing her job is weakened since women are not expected to be (economically) independent.

We rely on three different measures of gender stereotypes from different sources. We provide a detailed description of these measures and their construction in [Table A14](#). The first measure is based on a survey on gender violence and stereotypes, using several questions from the World Value Survey, run by ISTAT in 2018 and publicly available only at the regional level. We focus on the answers provided by female respondents reporting their level of agreement with the three statements, as shown in [Table A14](#). To create a synthetic measure of stereotypes, we create a z-score that summarizes the level of agreement to all these statements. The second measure is based on labour market data from the Labor Force Survey, run by ISTAT. At the provincial level, we construct an index for the exclusion of women from the labour market. It is defined as the difference between male and female employment rates among those aged 54 and older weighted for the level of female employment among those aged 54 and older. The index assumes the value 0 in the case of perfect equality between male and female employment, positive and higher levels of the index point at a greater exclusion of women from the labour market, interpreted as a higher level of gender stereotypes. Women, especially in Italy, have higher employment rates at the beginning of their working career but tend to leave the labour force after childbearing. Employment rates

among women older than 54 allow us to capture the level of emancipation (in the labour market) among who are no longer fertile and managed to remain in the labour force. Finally, a third index is based on the z-score of the responses to questions from our survey, some of which mimic those asked by ISTAT in 2018. We focus on the answers provided by female respondents along 8 dimensions, as shown in Table A14 and, more specifically, in Table C3. For each respondent, we define a synthetic measure of stereotypes by constructing a z-score equal to the average of all standardized replies to the statements. The index provides information on individual-level gender stereotypes.

In Figure 12, we plot the descriptive statistics of the three indexes by geographical area, and as expected, southern regions show higher than average levels of gender stereotype, confirming that the role of women is more likely to be perceived in a traditional way. Similar results are confirmed in Panel (b) of the same figure, which shows higher employment ratios among women over 54 in the northern and central regions. The stereotypes measured according to our survey are constructed to capture the individual-level difference with respect to the national average of our survey sample. At the same time, the ISTAT z-score captures the regional-level difference with respect to the national level in the ISTAT survey. While we observe major differences at the aggregate level across regions, these differences are likely to fade when using individual data. The correlation between the measure from the ISTAT survey index and the employment ratio index is +0.77, while our survey stereotype index is positively correlated with the ISTAT index (+0.01) and with the employment ratio (+0.01). The lower correlation between our individual-level index and the other indexes computed at a more aggregated level (regional/provincial level) points to the high variability in individual-level gender stereotypes within the same geographical unit.

We estimate the model in Equation 2, adding each proxy for gender stereotype as an additional control in our preferred specification, which includes economic sector fixed effects. We also add the interactions with the main regressors capturing present concerns and future expectations. The results are shown in Table 8. Focusing on *Mental Distress* and *Concerns*, each column shows the results for the different measures of stereotypes. On average, stronger stereotypes are correlated with higher levels of *Mental Distress*, with positive and highly statistically significant estimated effects on *Concerns*. Consistent with previous results,

uncertainty about future employment turned out to be a major predictor of mental health (also in this specification). However, the coefficient of its interaction with gender stereotypes is negative, consistent with the idea that social norms act as a buffer to work-related stress. When women may lose their job, they are less stressed if they had not expected to have a job. If the fear of losing one’s job increases the level of stress by 46.7% (0.729/1.34), when the gender stereotype as proxied by the ISTAT measure (Column 1) increases by one standard deviation (0.888), the impact of the fear of losing one’s job decreases to 44.4%. The effect is substantially confirmed when using the working ratio. Individual-level stereotypes show similar trends, showing a larger significance of the interaction with the fear that the partner will lose their job. Consistent with the previous interpretation, fear that the partner will lose their job has a larger and positive impact on *Mental Distress* and *Concerns* when women have higher levels of gender stereotypes and therefore are more likely to consider their partner as the breadwinner.

Finally, we test the same model on the sample of women employed in February 2020 before the first wave of the pandemic. The purpose of this test is to check the effects of societal expectations on women who have already decided to take part in the labour force. The estimations presented in Table A10 confirm the previous results with a stronger magnitude. It is interesting to note that the expectation that the effects of the pandemic will be heavy on the labour market (generally speaking) increases the level of distress where stereotypes are stronger.

8 Conclusion

The COVID-19 pandemic has increased awareness of fragility and spread a sense of uncertainty that has no recent precedents. Private and public life has not the same since March 2020 in many countries. We explore how the pandemic affected women’s mental health at the end of its first wave in July 2020 with a unique survey of more than 4,000 Italian women, exploring the role of present concerns and future expectations. We measured mental health with a novel index of mental distress, capturing the respondent’s experience with depression, anxiety, panic, and fear of unexpected negative events.

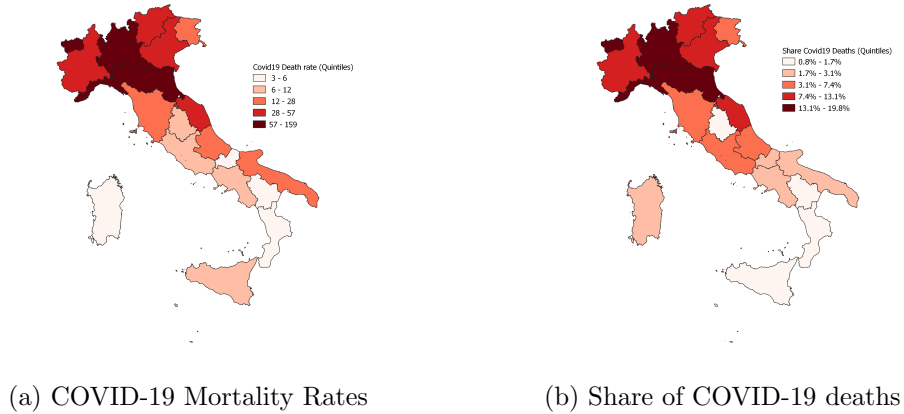
Present concerns measured by factors playing a role in the current experience of the respondent, such as the incidence of the virus, adherence to lockdown restrictions, or job loss, play a minor role compared to expectations regarding the future. We find a strong gradient by age group, with younger women reporting higher levels in the mental health index that persist across any specifications. We additionally contribute to the literature on the drivers of women's mental health, uncovering the possible cause of misalignment between women's aspirations and societal expectations for the role of women by studying how gender norms fit into this picture. We find that women abiding to more conventional norms report poorer mental health status while also being less stressed by the fear of losing their job.

Compliance with Ethical Standards

Conflict of interest: The authors declare that they have no conflicts of interest.

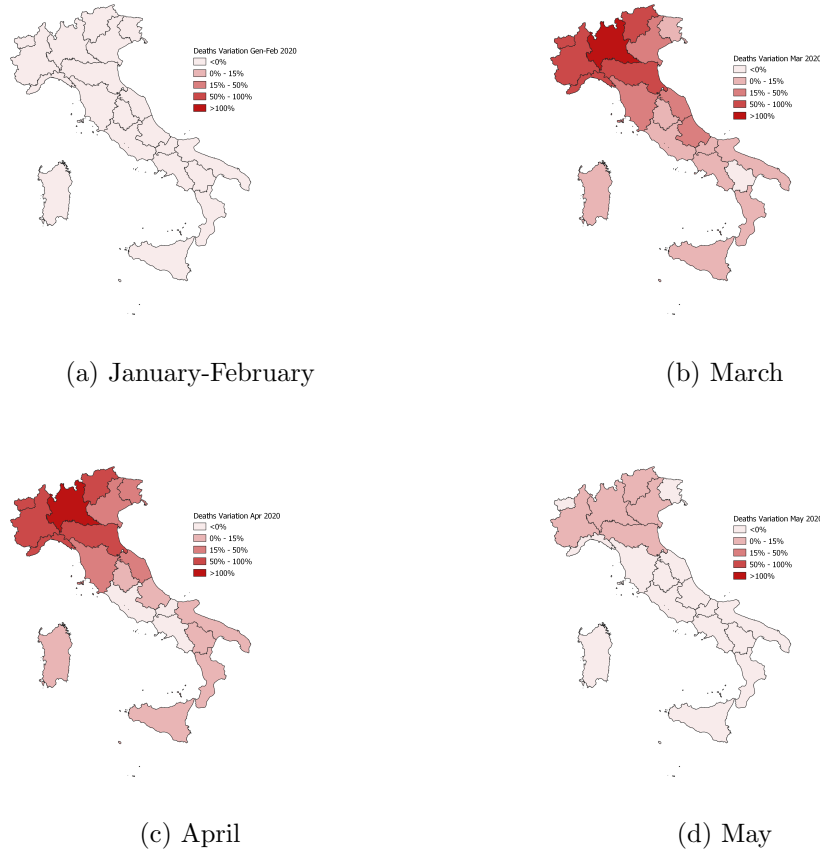
Tables and Figures

Figure 1: COVID-19 Mortality Rate and COVID-19 Deaths per regions



Notes: The two measures are computed by the National Institute of Statistics (ISTAT) together with the Istituto Superiore di Sanità (ISS) on administrative data ([Istat and Iss \(2020\)](#)) referred to the period January-May 2020. *COVID-19 Mortality Rates* represents the mortality rate due to COVID-19 standardized by the demographic characteristics of the resident population in each province (values expressed per 100,000 inhabitants). *Share of COVID-19 deaths* reports the share of deaths attributed to COVID-19 over the total number of deaths in the relevant time period and location.

Figure 2: Variations in the absolute number of deaths per period-region (2020)



Notes: The measures are computed by the National Institute of Statistics (ISTAT) together with the Istituto Superiore di Sanità (Iss) on administrative data (Istat and Iss (2020)) referred to the period January-May 2020. They describe the percentage variation in the absolute number of deaths in the relevant month comparing 2020 with the average rate in the period 2015-2019.

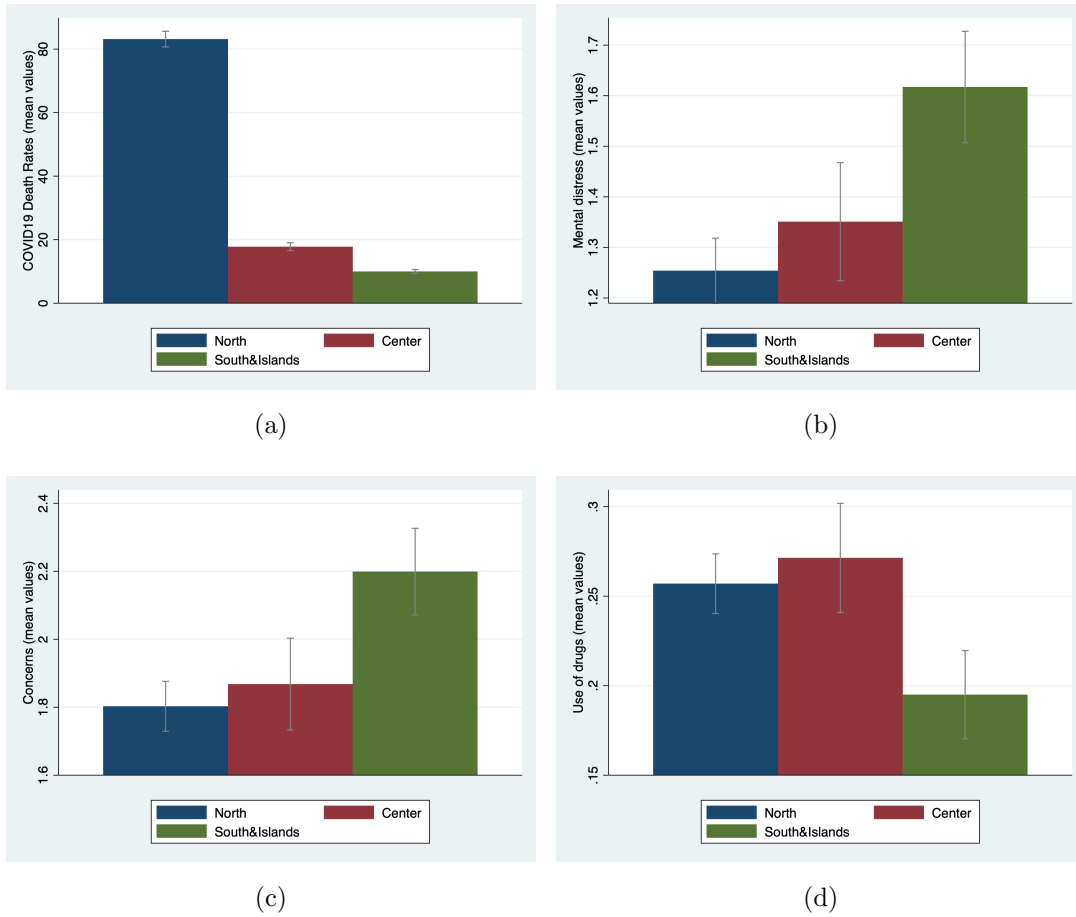
Figure 3: Italian Macro-areas



(a)

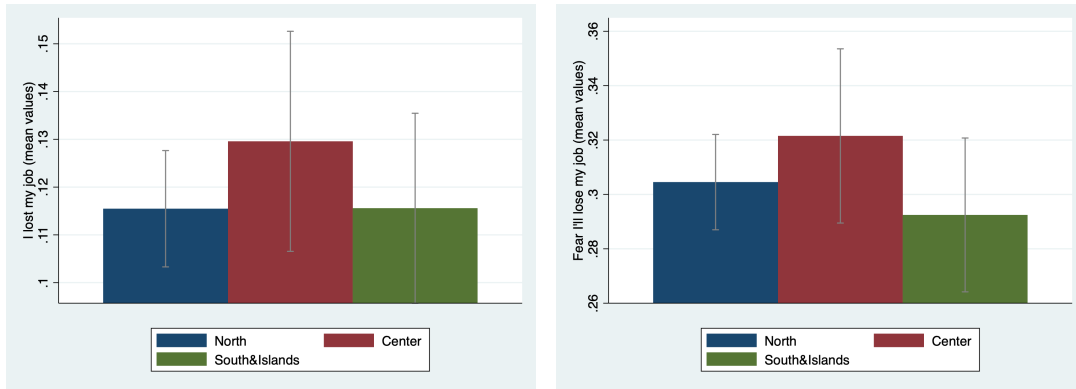
Notes: The map presents the five Italian macro-areas. They can be alternatively grouped into three macro-areas defined as *North*, including *North East* and *North West*, *Center*, including *Center*, and *South and Islands*, including *South* and *Islands*.

Figure 4: COVID-19 incidence and Mental Health



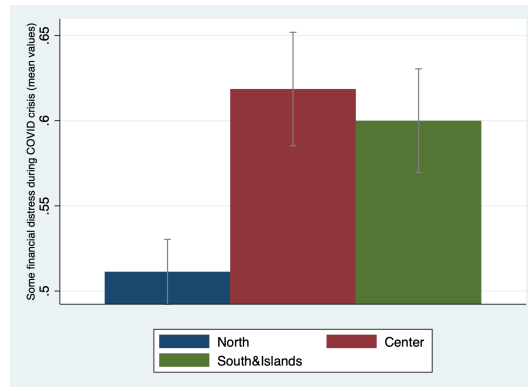
Notes: Descriptive statistics comparing the average values of each measure registered in the three geographic macro-areas. *COVID-19 Mortality Rates* represents the mortality rate due to COVID-19 standardized by the demographic characteristics of the resident population in each province (values expressed per 100,000 inhabitants) (Istat and Iss (2020)). The three measure for mental health derived from survey questions presented in Table C2. When answering, respondents are asked to think about their experience during the first wave of the pandemic (i.e., end of February 2020-June 2020). *Mental distress* is a measure which takes values between 0 and 5, with 5 representing the highest level of stress (i.e., *Depression*=1, *Anxiety*=1, *Sleeping problems*=1, *Panic*=1, *Fear*=1). *Concerns* is a measure which takes values between 0 and 7, with 7 representing the highest level of concerns (*Nobody to talk with*=1, *Family problems*=1, *Financial problems*=1, *Couple problems*=1, *Relatives' health*=1, *Personal health*=1, *Stress at the workplace*=1). *Drugs consumption* is a dummy equal to 1 when the respondent declares to have used at least a drug against anxiety or sleeping problems (with or without medical indication). Confidence intervals at 95%.

Figure 5: The economic distress



(a)

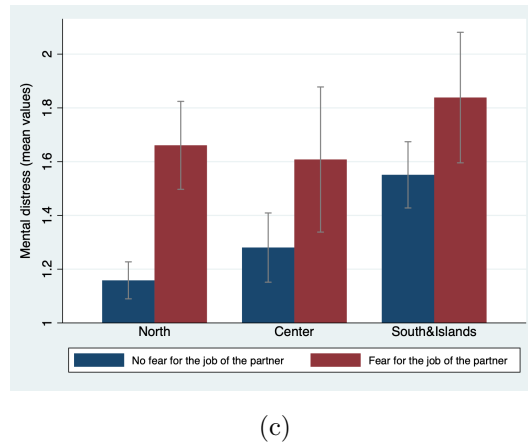
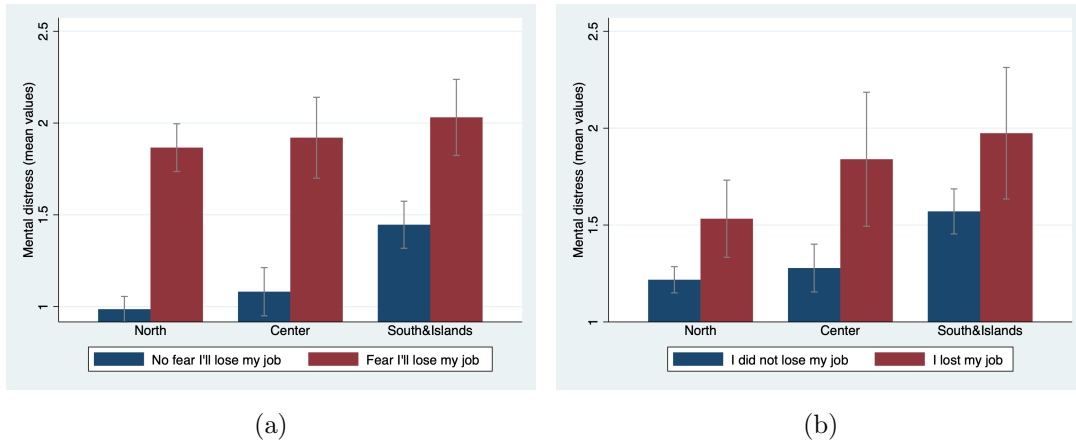
(b)



(c)

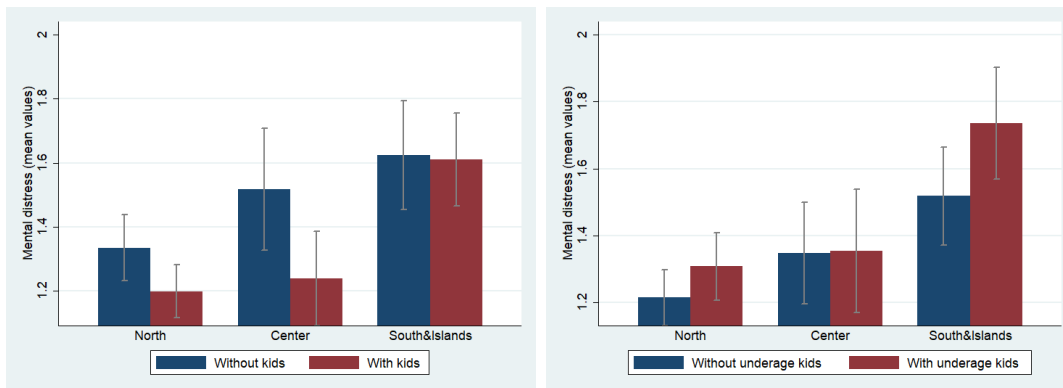
Notes: The Figures graphically present alternative measures of economic distress. *I lost my job* is a dummy assuming value 1 when the respondent declares of having already lost her job due to the COVID-19. *Fear I'll lose my job* is a dummy assuming value 1 when the respondent declares of having fear to lose her job due to the consequences of COVID-19. *Some financial distress during COVID-19* is a dummy assuming value 1 when the respondent declares of having experienced financial distress due to the COVID-19. Confidence intervals at 95%.

Figure 6: Economic and mental distress



Notes: The Figure presents the average values of self-reported mental distress stratifying by macroarea (North, Center, South-Islands) and proxies of economic distress presented in Figure 5. Confidence intervals at 95%.

Figure 7: Kids and mental distress



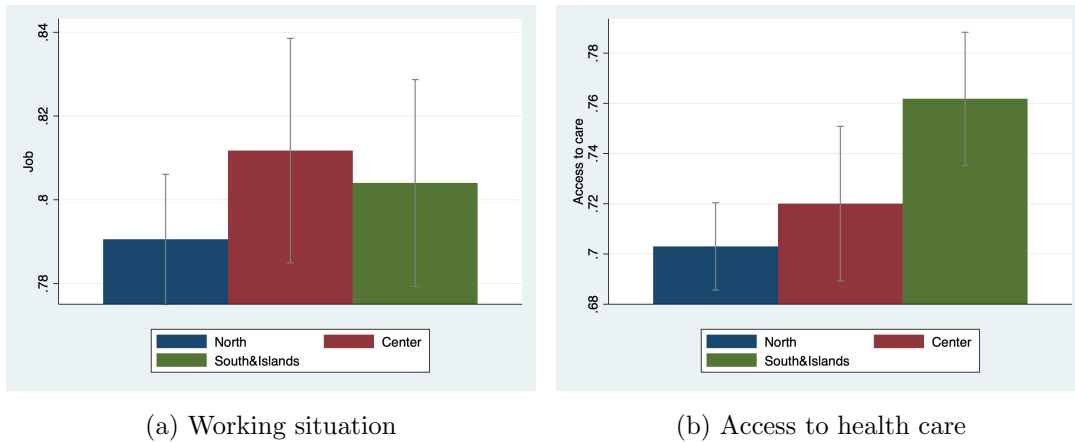
Notes: Descriptive statistics comparing the average level of mental distress by macroareas. No significant difference arises when respondents are stratified by having (not having) a kid or a school-aged kid. Confidence intervals at 95%.

Table 1: Correlations among Outcomes

	Mental Distress	Concerns	Drugs consumption
Mental Distress	1		
Concerns	0.5964	1	
Drugs consumption	0.2821	0.2310	1

Notes: For a definition of the variables *Mental Distress*, *Concerns* and *Drugs consumption* see Sections 3.1 and 3.2 (More details available in Tables A1 and A2).

Figure 8: Concerns on the consequences of COVID-19



Notes: the Figure presents the average scores reported by two measures of expectations about the future (*i.e.*, worried about limited access to care, worried about future conditions in the labor market). Descriptives are stratified by macro-area (3 macro-areas). Confidence intervals at 95%.

Table 2: **Controls**

SES	Employment	COVID-19	Employment Sector
School-aged Children	Permanent pre-COVID-19	Job-loss due to COVID-19	Agriculture
Children	Full time pre-COVID-19	Fear to lose the job	Services
Age (4 groups)	Housewife pre-COVID-19	Fear partner loses the job	Industry
Home sq. meter > 100	Unemployed pre-COVID-19	Remote work	Trade
Married	Partner: Permanent pre-COVID-19	Partner: Remote work	Construction
High School	Partner: Full time pre-COVID-19	Expectation: access to care	Education
College	Partner: Retired pre-COVID-19	Expectation: labor market	Healthcare
Religious	Partner: unemployed pre-COVID-19		
Lockdown high value	Partner: unemployed pre-COVID-19		

Notes: When we refer to the first wave of COVID-19, *pre – COVID – 19* means before March 2020.

Table 3: Results: overall

	Mental distress		Concerns		Drugs consumption	
<i>Provincial level controls</i>						
COVID-19 mortality	0.001** (0.000)	0.001** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000 (0.000)	0.000 (0.000)
Gdp	0.008 (0.031)	0.008 (0.031)	0.030 (0.033)	0.029 (0.033)	0.004 (0.009)	0.004 (0.009)
<i>SES</i>						
School-aged Child	0.218* (0.115)	0.221* (0.116)	0.161 (0.119)	0.162 (0.123)	-0.008 (0.033)	-0.009 (0.033)
Children	-0.053 (0.129)	-0.052 (0.127)	0.129 (0.111)	0.130 (0.110)	0.041* (0.023)	0.042* (0.023)
Age 35-45	-0.313*** (0.070)	-0.306*** (0.071)	-0.303*** (0.095)	-0.290*** (0.097)	-0.011 (0.025)	-0.013 (0.025)
Age 45-55	-0.492*** (0.069)	-0.479*** (0.071)	-0.596*** (0.046)	-0.568*** (0.050)	-0.019 (0.017)	-0.020 (0.016)
Age more 55	-0.556*** (0.101)	-0.537*** (0.102)	-0.727*** (0.084)	-0.694*** (0.081)	0.004 (0.029)	0.004 (0.028)
more100sqm	0.045 (0.069)	0.040 (0.068)	0.074 (0.050)	0.074 (0.049)	0.017 (0.015)	0.016 (0.015)
High school	-0.281*** (0.080)	-0.281*** (0.079)	-0.370*** (0.086)	-0.374*** (0.084)	-0.048** (0.022)	-0.047** (0.022)
College	-0.100 (0.065)	-0.114 (0.071)	-0.045 (0.068)	-0.051 (0.067)	0.012 (0.014)	0.013 (0.015)
Married	0.037 (0.071)	0.042 (0.069)	-0.137* (0.074)	-0.126 (0.074)	0.000 (0.014)	0.000 (0.014)
Religious	0.122 (0.084)	0.126 (0.083)	0.263** (0.100)	0.266** (0.099)	0.011 (0.020)	0.012 (0.020)
<i>Employment</i>						
Permanent pre-COVID-19	-0.012 (0.076)	-0.001 (0.078)	-0.086 (0.092)	-0.086 (0.093)	0.001 (0.023)	0.001 (0.023)
Full time pre-COVID-19	0.092 (0.079)	0.112 (0.078)	0.104 (0.075)	0.129 (0.076)	0.001 (0.017)	0.002 (0.017)
Housewife pre-COVID-19	0.136 (0.118)	0.125 (0.119)	0.015 (0.080)	0.001 (0.081)	-0.031 (0.024)	-0.034 (0.024)
Unemployed pre-COVID-19	0.330*** (0.082)	0.322*** (0.080)	-0.063 (0.138)	-0.076 (0.137)	-0.051** (0.023)	-0.054** (0.022)
Partner: Permanent pre-COVID-19	-0.283*** (0.075)	-0.284*** (0.076)	-0.153* (0.083)	-0.151* (0.085)	-0.039 (0.030)	-0.040 (0.030)
Partner:Full time pre-COVID-19	-0.007 (0.062)	-0.007 (0.063)	-0.136 (0.088)	-0.135 (0.091)	-0.043** (0.019)	-0.043** (0.019)
Partner:Retired pre-COVID-19	0.011 (0.086)	0.014 (0.079)	0.077 (0.200)	0.061 (0.197)	0.069* (0.034)	0.070* (0.035)
Partner:Unemployed pre-COVID-19	-0.242* (0.129)	-0.238* (0.131)	-0.010 (0.128)	-0.012 (0.130)	-0.050 (0.034)	-0.049 (0.034)
Public sector	0.269*** (0.064)		0.266*** (0.069)		0.016 (0.018)	
<i>Present Concerns</i>						
Jobloss due to COVID-19	0.199* (0.096)	0.194* (0.099)	0.150 (0.116)	0.154 (0.119)	0.023 (0.038)	0.021 (0.037)
Remote work	-0.004 (0.042)	0.016 (0.045)	0.046 (0.104)	0.089 (0.118)	0.027 (0.020)	0.027 (0.019)
Partner: Remote work	0.113* (0.061)	0.109* (0.062)	0.135 (0.090)	0.116 (0.091)	0.061*** (0.020)	0.062*** (0.020)
Lockdown high value	-0.032 (0.072)	-0.038 (0.072)	0.179** (0.078)	0.301* (0.145)	-0.053*** (0.015)	-0.054*** (0.014)
<i>Future Expectations</i>						
Fear to lose the job	0.653*** (0.083)	0.645*** (0.084)	0.832*** (0.079)	0.823*** (0.082)	0.083*** (0.011)	0.082*** (0.011)
Fear partner loses the job	0.343*** (0.064)	0.343*** (0.065)	0.474*** (0.051)	0.471*** (0.054)	0.062*** (0.015)	0.062*** (0.016)
COVID-19 on Jobs	0.422*** (0.062)	0.420*** (0.064)	0.440*** (0.054)	0.433*** (0.056)	0.012 (0.026)	0.012 (0.026)
COVID-19 on Health	0.325*** (0.057)	0.320*** (0.058)	0.588*** (0.069)	0.592*** (0.069)	0.032 (0.025)	0.033 (0.025)
Sectors	No	Yes	No	Yes	No	Yes
Mean	1.353	1.353	1.903	1.903	0.246	0.246
N	4,136	4,136	4,136	4,136	4,136	4,136

Notes: Each specification includes macro areas fixed effects (*i.e.*, North West, North East, Center, South, Islands), and *Sectors* includes: Agriculture, Services, Industry, Trade, Construction, Education, and Healthcare, while we use as reference category *Other*, which includes sectors different from the aforementioned. The standard errors are clustered at the region of residence level. *** p<0.01, ** p<0.05, * p<0.1. The reference category for age is the dummy for women younger than 35.

Table 4: Results: Only Northern Regions

	Mental distress		Concerns		Drugs consumption	
<i>Provincial level controls</i>						
COVID-19 mortality	0.001** (0.000)	0.001** (0.000)	0.001** (0.000)	0.001** (0.000)	-0.000 (0.000)	-0.000 (0.000)
Gdp	-0.045 (0.030)	-0.047 (0.027)	0.014 (0.047)	0.014 (0.044)	0.004 (0.015)	0.002 (0.016)
<i>SES</i>						
School-aged Child	0.245 (0.165)	0.257 (0.170)	0.198 (0.156)	0.213 (0.158)	-0.023 (0.049)	-0.024 (0.048)
Children	-0.128 (0.194)	-0.133 (0.192)	0.071 (0.167)	0.058 (0.162)	0.054 (0.030)	0.054 (0.030)
Age 35-45	-0.252* (0.110)	-0.241* (0.111)	-0.163 (0.121)	-0.161 (0.125)	-0.011 (0.036)	-0.012 (0.035)
Age 45-55	-0.469*** (0.079)	-0.442*** (0.081)	-0.602*** (0.055)	-0.571*** (0.061)	-0.013 (0.023)	-0.013 (0.022)
Age more 55	-0.443** (0.133)	-0.408** (0.131)	-0.713*** (0.097)	-0.668*** (0.089)	0.012 (0.040)	0.013 (0.038)
More100sqm	0.004 (0.092)	0.005 (0.091)	-0.012 (0.049)	-0.008 (0.048)	0.017 (0.023)	0.017 (0.023)
High school	-0.150* (0.061)	-0.161** (0.062)	-0.183* (0.083)	-0.192* (0.076)	-0.021 (0.032)	-0.022 (0.032)
College	-0.134 (0.107)	-0.151 (0.109)	-0.166 (0.097)	-0.173 (0.092)	0.044** (0.012)	0.047** (0.013)
Married	0.158** (0.054)	0.166** (0.051)	0.039 (0.022)	0.047* (0.022)	-0.013 (0.013)	-0.013 (0.013)
Religious	-0.000 (0.119)	0.006 (0.124)	0.105 (0.119)	0.112 (0.120)	-0.023 (0.035)	-0.021 (0.036)
<i>Employment</i>						
Permanent pre-COVID-19	0.020 (0.121)	0.029 (0.127)	-0.163 (0.156)	-0.164 (0.156)	0.010 (0.033)	0.010 (0.031)
Full time pre-COVID-19	0.000 (0.124)	0.029 (0.124)	0.093 (0.115)	0.115 (0.114)	-0.031 (0.020)	-0.029 (0.021)
Housewife pre-COVID-19	0.224 (0.166)	0.209 (0.178)	-0.115 (0.112)	-0.132 (0.108)	-0.025 (0.043)	-0.029 (0.041)
Unemployed pre-COVID-19	0.393*** (0.085)	0.389*** (0.075)	0.036 (0.205)	0.021 (0.197)	-0.060*** (0.013)	-0.063*** (0.013)
Partner: Permanent pre-COVID-19	-0.404*** (0.087)	-0.403*** (0.089)	-0.169 (0.157)	-0.176 (0.162)	-0.007 (0.039)	-0.009 (0.040)
Partner:Full time pre-COVID-19	0.028 (0.064)	0.031 (0.064)	-0.235 (0.133)	-0.230 (0.133)	-0.062* (0.024)	-0.061* (0.025)
Partner:Retired pre-COVID-19	-0.091 (0.080)	-0.100 (0.054)	0.069 (0.315)	0.006 (0.306)	0.055 (0.034)	0.058 (0.034)
Partner:Unemployed pre-COVID-19	-0.194 (0.198)	-0.188 (0.203)	0.104 (0.196)	0.116 (0.212)	-0.022 (0.041)	-0.024 (0.042)
Public sector	0.321*** (0.043)		0.275** (0.079)		0.013 (0.022)	
<i>Present Concerns</i>						
Jobloss due to COVID-19	0.086 (0.105)	0.086 (0.100)	0.276* (0.119)	0.288* (0.116)	0.033 (0.046)	0.032 (0.045)
Remote work	0.013 (0.041)	0.045 (0.053)	-0.040 (0.133)	0.008 (0.154)	0.040 (0.027)	0.039 (0.025)
Partner: Remote work	0.067 (0.081)	0.054 (0.077)	0.205** (0.066)	0.181** (0.068)	0.040 (0.027)	0.039 (0.027)
Lockdown high value	-0.006 (0.062)	-0.012 (0.062)	0.253* (0.119)	0.698*** (0.070)	-0.050* (0.023)	-0.051* (0.023)
<i>Future Expectations</i>						
Fear to lose the job	0.720*** (0.082)	0.715*** (0.080)	0.850*** (0.073)	0.845*** (0.067)	0.077*** (0.010)	0.074*** (0.010)
Fear partner loses the job	0.381*** (0.094)	0.388*** (0.094)	0.450*** (0.063)	0.447*** (0.065)	0.080*** (0.017)	0.081*** (0.017)
COVID-19 on Jobs	0.310*** (0.054)	0.306*** (0.055)	0.361*** (0.072)	0.337*** (0.071)	0.011 (0.044)	0.009 (0.045)
COVID-19 on Health	0.403*** (0.054)	0.412*** (0.057)	0.684*** (0.064)	0.698*** (0.070)	0.061 (0.036)	0.061 (0.036)
Sectors	No	Yes	No	Yes	No	Yes
Mean	1.254	1.254	1.803	1.803	0.257	0.257
N	2,511	2,511	2,511	2,511	2,511	2,511

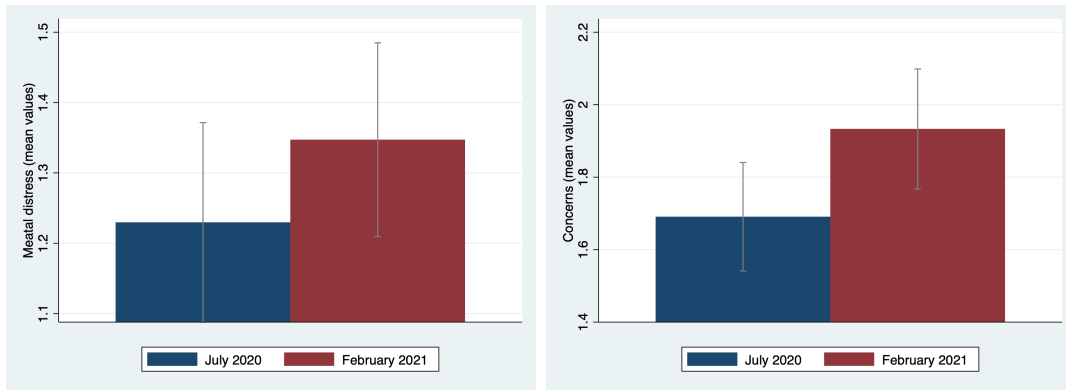
Notes: Each specification includes macro areas fixed effects (i.e., North West, North East, Center, South, Islands), and Sectors includes: Agriculture, Services, Industry, Retail, Construction, Education, and Healthcare, while we use as reference category *Other*, which includes sectors different from the aforementioned. The standard errors are clustered at the region of residence level. *** p<0.01, ** p<0.05, * p<0.1. The reference category for age is the dummy for women younger than 35.

Table 5: Results: Causes of mental distress

	Depression	Sleeping problems	Anxiety	Panic	Fear
<i>Provincial level controls</i>					
COVID-19 mortality	0.000 (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)
Gdp	0.006 (0.009)	-0.001 (0.005)	-0.002 (0.010)	-0.000 (0.008)	0.006 (0.008)
<i>SES</i>					
School-aged Child	0.034 (0.028)	0.060** (0.021)	0.058* (0.032)	0.017 (0.022)	0.052* (0.028)
Children	0.003 (0.025)	-0.009 (0.035)	-0.023 (0.026)	0.002 (0.021)	-0.025 (0.029)
Age 35-45	-0.077*** (0.025)	-0.037** (0.016)	-0.066*** (0.018)	-0.067*** (0.019)	-0.060*** (0.011)
Age 45-55	-0.096*** (0.018)	-0.057*** (0.016)	-0.124*** (0.019)	-0.091*** (0.012)	-0.111*** (0.025)
Age more 55	-0.112*** (0.031)	-0.057** (0.022)	-0.144*** (0.032)	-0.086*** (0.019)	-0.138*** (0.030)
More100sqm	0.010 (0.015)	-0.003 (0.020)	-0.005 (0.018)	0.012 (0.010)	0.026 (0.019)
High school	-0.063*** (0.017)	-0.060** (0.021)	-0.056** (0.023)	-0.054** (0.021)	-0.049** (0.019)
College	-0.020 (0.017)	-0.010 (0.018)	-0.024 (0.021)	-0.013 (0.014)	-0.047*** (0.015)
Married	0.003 (0.014)	0.010 (0.031)	0.005 (0.014)	0.002 (0.017)	0.023 (0.023)
Religious	0.012 (0.016)	-0.002 (0.018)	0.030 (0.022)	0.065*** (0.017)	0.021 (0.025)
<i>Employment</i>					
Permanent pre-COVID-19	-0.019 (0.021)	-0.007 (0.023)	0.009 (0.023)	0.014 (0.018)	0.001 (0.021)
Full time pre-COVID-19	0.043** (0.020)	0.026 (0.020)	-0.001 (0.021)	0.030* (0.015)	0.013 (0.021)
Housewife pre-COVID-19	0.034 (0.030)	-0.022 (0.033)	0.034 (0.036)	0.040 (0.030)	0.038 (0.023)
Unemployed pre-COVID-19	0.094*** (0.025)	0.049** (0.021)	0.081** (0.030)	0.037* (0.020)	0.062*** (0.018)
Partner: Permanent pre-COVID-19	-0.053** (0.021)	-0.046 (0.034)	-0.079*** (0.017)	-0.071*** (0.017)	-0.034 (0.022)
Partner:Full time pre-COVID-19	-0.007 (0.017)	-0.041* (0.023)	0.030* (0.016)	0.022 (0.019)	-0.011 (0.015)
Partner:Retired pre-COVID-19	0.037 (0.026)	-0.029 (0.034)	0.002 (0.017)	-0.012 (0.018)	0.016 (0.031)
Partner:Unemployed pre-COVID-19	-0.033 (0.034)	-0.100** (0.039)	-0.057 (0.038)	-0.007 (0.028)	-0.040 (0.038)
<i>Present Concerns</i>					
Jobloss due to COVID-19	-0.002 (0.021)	0.036 (0.041)	0.050 (0.037)	0.062** (0.024)	0.048 (0.028)
Remote work	-0.013 (0.013)	0.001 (0.017)	0.008 (0.014)	0.005 (0.010)	0.015 (0.013)
Partner: Remote work	0.024 (0.016)	0.012 (0.019)	-0.018 (0.025)	0.064*** (0.014)	0.026** (0.010)
Lockdown high value	-0.044** (0.015)	0.013 (0.018)	0.003 (0.020)	-0.057*** (0.015)	0.047** (0.017)
<i>Future Expectations</i>					
Fear to lose the job	0.140*** (0.021)	0.121*** (0.018)	0.145*** (0.019)	0.088*** (0.014)	0.153*** (0.021)
Fear partner loses the job	0.047*** (0.012)	0.086*** (0.014)	0.055*** (0.014)	0.071*** (0.016)	0.085*** (0.019)
COVID-19 on Jobs	0.068*** (0.018)	0.093*** (0.021)	0.113*** (0.017)	0.027*** (0.009)	0.119*** (0.018)
COVID-19 on Health	0.052*** (0.017)	0.075*** (0.018)	0.077*** (0.012)	0.040*** (0.011)	0.085*** (0.017)
Sectors	Yes	Yes	Yes	Yes	Yes
Mean	0.243	0.298	0.343	0.151	0.318
N	4,136	36,136	4,136	4,136	4,136

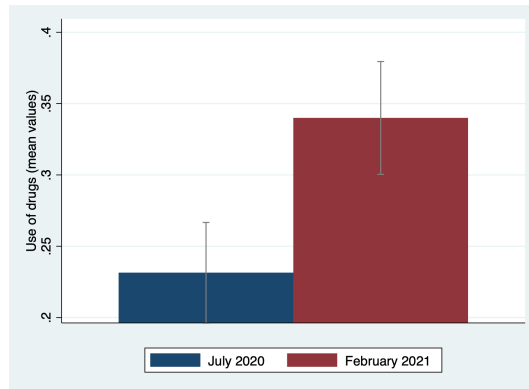
Notes: Each specification includes macro areas fixed effects (*i.e.*, North West, North East, Center, South, Islands), and *Sectors* includes: Agriculture, Services, Industry, Retail, Construction, Education, and Healthcare, while we use as reference category *Other*, which includes sectors different from the aforementioned. The standard errors are clustered at the region of residence level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The reference category for age is the dummy for women younger than 35. For an explanation of the variables see Table A3.

Figure 9: Outcomes between the First and the Second Wave



(a) Mental distress

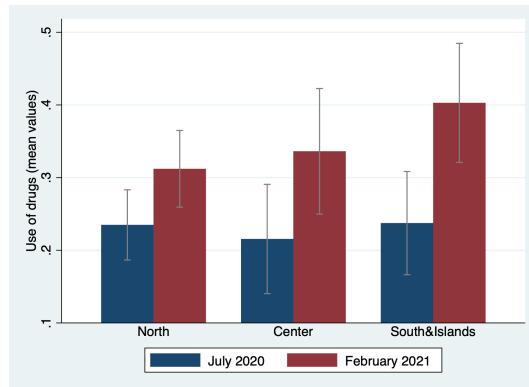
(b) Concerns



(c) Drugs consumption

Notes: Comparison between outcomes reported in the first (July 2020) and second (February 2021) wave. If anything, respondents report worst mental health outcomes in the second wave. Confidence intervals at 95%.

Figure 10: Drugs consumption per geographical areas



(a) Drugs consumption

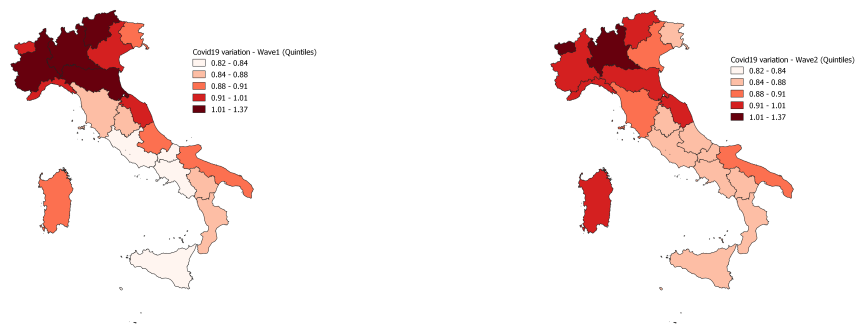
Notes: Comparison in *Drugs Consumption* by macro-areas reported in the first (July 2020) and second (February 2021) wave. Confidence intervals at 95%.

Table 6: Results: Main causes of concern

	Personal Health	Relatives Health	Financial Problems	Partner Problems	Stress on the Workplace
<i>Provincial level controls</i>					
COVID-19 mortality rate x100k	0.000* (0.000)	0.001*** (0.000)	0.000*** (0.000)	0.000 (0.000)	-0.000 (0.000)
Gdp	-0.005 (0.006)	0.002 (0.010)	0.001 (0.011)	0.002 (0.008)	0.007 (0.007)
<i>SES</i>					
School-aged child	0.049 (0.029)	0.043** (0.020)	-0.002 (0.018)	0.037** (0.018)	0.011 (0.024)
Children	-0.018 (0.028)	0.007 (0.023)	0.080*** (0.020)	0.003 (0.015)	0.024 (0.018)
Age 35-45	-0.054** (0.026)	-0.050*** (0.017)	-0.028 (0.020)	-0.057** (0.026)	-0.032** (0.012)
Age 45-55	-0.091*** (0.014)	-0.112*** (0.018)	-0.063*** (0.017)	-0.097*** (0.017)	-0.069*** (0.010)
Age more 55	-0.112*** (0.029)	-0.184*** (0.026)	-0.054*** (0.017)	-0.084*** (0.018)	-0.091*** (0.014)
More100sqm	0.038** (0.013)	0.030* (0.015)	-0.014 (0.016)	0.001 (0.011)	-0.001 (0.014)
High school	-0.073*** (0.014)	-0.016 (0.020)	-0.049*** (0.016)	-0.067*** (0.018)	-0.030** (0.013)
College	-0.015 (0.024)	-0.012 (0.017)	-0.038*** (0.011)	-0.001 (0.013)	0.015 (0.012)
Married	-0.006 (0.019)	-0.048*** (0.013)	-0.042* (0.023)	0.003 (0.015)	-0.006 (0.014)
Religious	0.073*** (0.022)	0.040* (0.019)	-0.004 (0.022)	0.030** (0.011)	0.022 (0.016)
<i>Employment</i>					
Permanent pre-COVID-19	-0.007 (0.021)	-0.015 (0.026)	-0.018 (0.015)	-0.036* (0.021)	0.036 (0.025)
Full time pre-COVID-19	0.024 (0.015)	-0.007 (0.016)	-0.009 (0.020)	0.027 (0.018)	0.047** (0.021)
Housewife pre-COVID-19	0.042 (0.028)	0.020 (0.034)	-0.001 (0.032)	-0.014 (0.017)	-0.064*** (0.013)
Unemployed pre-COVID-19	0.003 (0.032)	-0.009 (0.023)	0.031 (0.029)	-0.041* (0.021)	-0.091*** (0.023)
Partner: Permanent pre-COVID-19	-0.026 (0.016)	0.019 (0.020)	-0.053* (0.026)	0.028* (0.016)	-0.059** (0.024)
Partner:Full time pre-COVID-19	0.010 (0.024)	-0.003 (0.026)	-0.043* (0.022)	0.011 (0.017)	-0.010 (0.019)
Partner:Retired pre-COVID-19	0.039 (0.052)	0.136** (0.050)	-0.126*** (0.037)	0.088** (0.033)	-0.029 (0.039)
Partner:Unemployed pre-COVID-19	0.006 (0.033)	-0.034 (0.022)	0.044* (0.025)	0.081** (0.035)	-0.017 (0.025)
<i>Present Concerns</i>					
Jobless due to COVID-19	0.090** (0.042)	0.025 (0.035)	0.116*** (0.030)	-0.010 (0.029)	-0.076** (0.027)
Remote work	0.037 (0.026)	0.043** (0.019)	-0.032 (0.025)	0.015 (0.012)	-0.008 (0.027)
Partner: Remote work	0.005 (0.025)	0.007 (0.019)	-0.011 (0.021)	0.039** (0.016)	0.007 (0.016)
Lockdown high value	0.083*** (0.026)	0.207*** (0.019)	0.023* (0.013)	-0.049*** (0.011)	-0.008 (0.019)
<i>Future Expectations</i>					
Fear to lose the job	0.135*** (0.023)	0.111*** (0.020)	0.239*** (0.019)	0.078*** (0.013)	0.114*** (0.015)
Fear partner loses the job	0.075*** (0.016)	0.043* (0.025)	0.169*** (0.015)	0.077*** (0.016)	0.050*** (0.012)
COVID-19 on Jobs	0.042* (0.021)	0.101*** (0.016)	0.140*** (0.017)	0.037** (0.014)	0.042*** (0.010)
COVID-19 on Health	0.136*** (0.015)	0.142*** (0.017)	0.082*** (0.020)	0.041*** (0.014)	0.084*** (0.014)
Sectors	Yes	38 Yes	Yes	Yes	Yes
Mean	0.343	0.515	0.343	0.148	0.198
N	4,136	4,136	4,136	4,136	4,136

Notes: Each specification includes macro areas fixed effects (*i.e.*, North West, North East, Center, South, Islands), and *Sectors* includes: Agriculture, Services, Industry, Retail, Construction, Education, and Healthcare, while we use as reference category *Other*, which includes sectors different from the aforementioned. The standard errors are clustered at the region of

Figure 11: Variations in the absolute number of deaths per wave-region



(a) Variation in Deaths - Wave1

(b) Variation in Deaths - Wave2

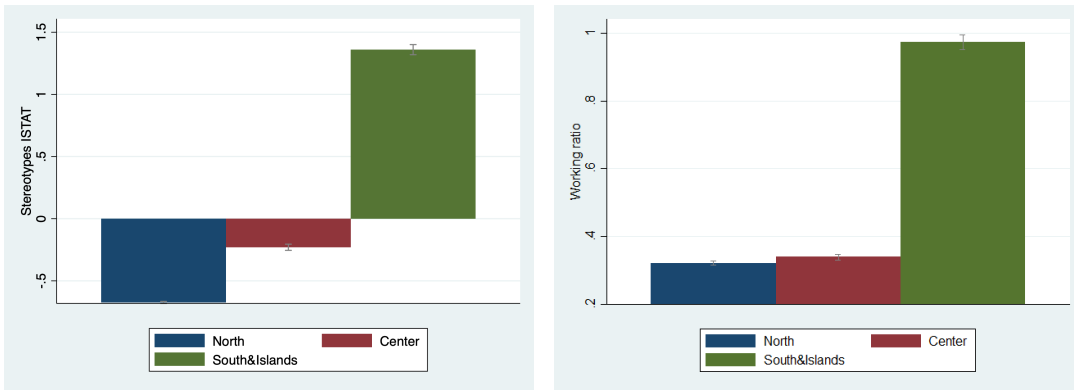
Notes: The measures are computed by the National Institute of Statistics (ISTAT) together with the Istituto Superiore di Sanità (Iss) on administrative data ([Istat and Iss \(2020\)](#)) referred to the period January-November 2020 (most updated date at the time of analysis). They describe the variation in the absolute number of deaths in the relevant period (*i.e.*, wave) comparing 2020 with the average rate in the period 2015-2019 (variation equal 1 means an increase in the number of deaths equal to 100%). *Wave1* focuses on the months January-June 2020, while *Wave2* on the months January-November 2020.

Table 7: **Fixed Effects Model**

	Mental distress	Concerns	Drugs consumption
Fear to lose the job	0.464*** (0.152)	-0.127 (0.198)	0.030 (0.021)
Fear partner loses the job	0.214 (0.139)	0.204 (0.231)	0.033 (0.060)
Financial distress	0.401*** (0.069)	0.290** (0.130)	0.003 (0.033)
Red weeks	0.001 (0.018)	0.064* (0.036)	-0.005 (0.010)
Orange weeks	-0.009 (0.036)	0.074 (0.071)	-0.011 (0.013)
Yellow weeks	0.015 (0.018)	0.030 (0.029)	-0.000 (0.009)
Covid intensity before wave (var 2020/2015-19)	0.170 (0.328)	0.917 (0.555)	0.049 (0.213)
February 2021	0.020 (0.303)	-0.425 (0.522)	0.166 (0.126)
Health status: Extremely poor	-0.852 (0.981)	-0.081 (1.455)	0.038 (0.137)
Health status: Poor	0.328 (0.603)	-0.059 (0.606)	0.144 (0.129)
Health status: Average	0.192 (0.331)	-0.082 (0.462)	0.113 (0.121)
Health status: Good	0.363 (0.278)	0.211 (0.427)	0.043 (0.121)
N	1,106	1,106	1,106

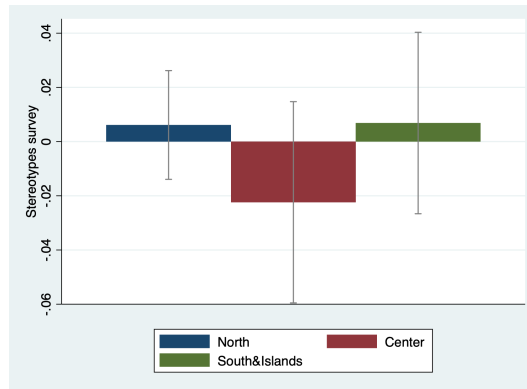
Notes: The coefficients are from a fixed effects model on the panel of respondents answering in both waves. For an explanation of the variables see Table [A15](#).

Figure 12: Stereotypes



(a) Stereotype ISTAT

(b) Working Ratio



(c) Stereotype index

Notes: the Figure presents the average scores reported by alternative measures of gender stereotypes (see Table A14 for their definition). Descriptives are stratified by macroarea. Confidence intervals at 95%.

Table 8: Stereotypes As Drivers

	Mental distress			Concerns		
	Stereotype	Working	Stereotype	Stereotype	Working	Stereotype
	ISTAT	Ratio	Survey	ISTAT	Ratio	Survey
Stereotype	0.190** (0.085)	0.078 (0.205)	0.234 (0.143)	0.259** (0.092)	0.575** (0.254)	0.634*** (0.185)
Stereotype*Covid mortality rate x100k	-0.001 (0.002)	-0.001 (0.001)	0.001 (0.001)	-0.001 (0.003)	-0.004* (0.002)	0.000 (0.001)
Stereotype*Jobloss due to Covid	0.026 (0.090)	-0.112 (0.322)	0.015 (0.369)	-0.196*** (0.052)	0.433 (0.258)	-0.204 (0.286)
Stereotype*Fear to lose the job	-0.145** (0.053)	-0.330** (0.144)	0.121 (0.168)	-0.128** (0.051)	-0.362** (0.149)	0.160 (0.129)
Stereotype*Fear partner loses the job	-0.061 (0.060)	-0.361* (0.197)	0.315*** (0.101)	0.018 (0.067)	0.011 (0.184)	0.228** (0.100)
Stereotype*Lockdown high value	0.023 (0.040)	0.184* (0.096)	-0.102 (0.120)	-0.091 (0.061)	-0.276** (0.105)	-0.200 (0.140)
Stereotype*Remote work	0.009 (0.040)	-0.162 (0.148)	-0.027 (0.137)	0.045 (0.093)	-0.039 (0.208)	0.226* (0.110)
Stereotype*Covid on Jobs	0.117 (0.076)	0.375* (0.189)	-0.154 (0.151)	0.078 (0.053)	0.246 (0.171)	-0.206 (0.143)
Stereotype*Covid on Health	-0.053 (0.082)	-0.014 (0.211)	0.269** (0.095)	-0.029 (0.074)	-0.048 (0.173)	-0.015 (0.106)
Covid mortality rate x100k	0.001 (0.001)	-0.016 (0.015)	0.001* (0.000)	0.000 (0.002)	0.003** (0.001)	0.001** (0.000)
<i>Present Concerns</i>						
Jobloss due to Covid	0.203* (0.097)	0.255 (0.226)	0.188* (0.107)	0.134 (0.091)	0.361* (0.178)	0.131 (0.110)
Remote work	0.016 (0.045)	0.094 (0.077)	0.022 (0.043)	0.099 (0.110)	0.117 (0.182)	0.105 (0.113)
Lockdown high value	-0.030 (0.073)	-0.114 (0.099)	0.081 (0.080)	0.164** (0.074)	0.310*** (0.101)	0.340*** (0.065)
<i>Future Expectations</i>						
Fear to lose the job	0.626*** (0.067)	0.799*** (0.086)	0.622*** (0.085)	0.806*** (0.069)	0.992*** (0.115)	0.779*** (0.078)
Fear partner loses the job	0.330*** (0.060)	0.510*** (0.118)	0.284*** (0.069)	0.472*** (0.058)	0.464*** (0.090)	0.399*** (0.061)
Covid on Jobs	0.443*** (0.061)	0.250** (0.101)	0.442*** (0.058)	0.442*** (0.048)	0.316** (0.112)	0.471*** (0.054)
Covid on Health	0.308*** (0.069)	0.332*** (0.105)	0.320*** (0.061)	0.582*** (0.073)	0.612*** (0.122)	0.577*** (0.070)
Observations	4136	4136	4136	4136	4136	4136
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Mean	1.353	1.353	1.353	1.903	1.903	1.903
N	4,136	4,136	4,136	4,136	4,136	4,136

Notes: Each specification includes macro areas fixed effects (*i.e.*, North West, North East, Center, South, Islands), and *Sectors* includes: Agriculture, Services, Industry, Retail, Construction, Education, and Healthcare, while we use as reference category *Other*, which includes sectors different from the aforementioned. The standard errors are clustered at the region of residence level. *** p<0.01, ** p<0.05, * p<0.1. The reference category for age is the dummy for women younger than 35. For an explanation of the variables see Table A3.

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Appendix A

Table A1: **Outcomes Definition - Mental Distress**

Outcomes	Definition
Mental distress	Continuous from 0 to 5, with 5 the highest value. It is the sum of 5 dummies: Depression, Fear, Anxiety, Panic, and Sleeping problems
Depression	Dummy=1 if during the first wave of COVID-19 you felt depressed or hopeless: always or very often and 0 otherwise
Fear	Dummy=1 if during the first wave of COVID-19 you had been scared that something bad could happen: always or very often and 0 otherwise
Anxiety	Dummy=1 if during the first wave of COVID-19 you felt nervous, anxious or edgy: always or very often and 0 otherwise
Panic	Dummy=1 if during the first wave of COVID-19 you had panic attacks: always or very often and 0 otherwise
Sleeping problems	Dummy=1 if during the first wave of COVID-19 you had sleeping problems or problems to get asleep: always or very often and 0 otherwise

Notes: When we refer to the first wave of COVID-19, we refer to the first wave which took place in Italy from the end of February 2020 to June 2020.

Table A2: **Outcomes Definition - Concerns**

Outcomes	Definition
Concerns	Continuous from 0 to 7, with 7 the highest value. It is the sum of 7 dummies: Nobody, Family problems, Financial problems, Couple problems, Relatives' health, Personal health, Stress at the workplace
Nobody	Dummy=1 if during the first wave of COVID-19 you felt concerned because having nobody to talk with: always or very often and 0 otherwise
Family problems	Dummy=1 if during the first wave of COVID-19 you felt concerned for family problems: always or very often and 0 otherwise
Financial problems	Dummy=1 if during the first wave of COVID-19 you felt concerned for financial problems: always or very often and 0 otherwise
Couple problems	Dummy=1 if during the first wave of COVID-19 you felt concerned for couple problems: always or very often and 0 otherwise
Relatives health	Dummy=1 if during the first wave of COVID-19 you felt concerned for the health of your relatives: always or very often and 0 otherwise
Personal health	Dummy=1 if during the first wave of COVID-19 you felt concerned for your personal health: always or very often and 0 otherwise
Stress at the workplace	Dummy=1 if during the first wave of COVID-19 you felt concerned for the level of stress at your workplace: always or very often and 0 otherwise

Notes: When we refer to the first wave of COVID-19, we refer to the first wave which took place in Italy from the end of February 2020 to June 2020.

Table A3: Variables Definition

Variable	Definition
School-aged Child	Dummy=1 if respondent has at least one child younger than 18 and 0 otherwise
Children	Dummy=1 if respondent has one child and 0 otherwise
Age (4 categories)	4 age categories dummies (below age 35, 36-45, 46-55, above 55)
Home sq. meter > 100	Dummy=1 if respondent's home size is bigger than 100 squared meter and 0 otherwise
Married	Dummy=1 if respondent is married and 0 otherwise
High School	Dummy=1 if respondent has high-school degree and 0 otherwise
College	Dummy=1 if respondent has college (and above) degree and 0 otherwise
Religious	Dummy=1 if respondent is religious and practicing
Permanent pre-COVID-19	Dummy=1 if respondent had a permanent job pre-COVID-19 0 otherwise
Full time pre-COVID-19	Dummy=1 if respondent had a full-time job pre-COVID-19 0 otherwise
Housewife pre-COVID-19	Dummy=1 if respondent was housewife pre-COVID-19 0 otherwise
Unemployed pre-COVID-19	Dummy=1 if respondent was unemployed pre-COVID-19 0 otherwise
Partner: Permanent pre-COVID-19	Dummy=1 if respondent's partner had a permanent job pre-COVID-19 0 otherwise
Partner: Full time pre-COVID-19	Dummy=1 if respondent's partner had a full-time job pre-COVID-19 0 otherwise
Partner: Retired pre-COVID-19	Dummy=1 if respondent's partner was retired pre-COVID-19 0 otherwise
Partner: unemployed pre-COVID-19	Dummy=1 if respondent's partner was unemployed pre-COVID-19 0 otherwise
Jobloss due to COVID-19	Dummy=1 if respondent lost his job during COVID-19 and 0 otherwise
Fear to lose the job	Dummy=1 if respondent is afraid to lose his job after COVID-19 and 0 otherwise
Fear partner loses the job	Dummy=1 if respondent is afraid that partner may lose his job after COVID-19 and 0 otherwise
Expectation: access to care	Dummy=1 if respondent has pessimistic expectations over the access to care after COVID-19 and 0 otherwise
Expectation: labor market	Dummy=1 if respondent has pessimistic expectations over the labor market after COVID-19 and 0 otherwise
Remote working during COVID-19	Dummy=1 if respondent has worked remotely during COVID-19 0 otherwise
Partner: remote working during COVID-19	Dummy=1 if respondent's partner has worked remotely during COVID-19 0 otherwise

Notes: When we refer to the first wave of COVID-19, we refer to the first wave which took place in Italy from the end of February 2020 to June 2020.

Table A4: **Results: overall, coefficients of the sector**

	Mental distress	Concerns	Drugs consumption
Agriculture	0.077 (0.163)	0.174** (0.079)	-0.011 (0.044)
Services	0.015 (0.059)	-0.107 (0.327)	0.013 (0.018)
Industry	-0.021 (0.078)	0.014 (0.084)	0.027 (0.021)
Retail	0.002 (0.083)	-0.129 (0.085)	0.005 (0.025)
Construction	-0.049 (0.092)	0.017 (0.085)	-0.016 (0.036)
Education	0.192*** (0.052)	0.225 (0.197)	0.016 (0.010)
Healthcare	0.212 (0.131)	0.034 (0.081)	0.000 (0.025)
Mean	1.353	1.903	0.246
N	4,136	4,136	4,136

Notes: The residual category is *Other* which includes any other sector not mentioned in the list we proposed in the survey.

Table A5: **Results: Only Northern Regions, coefficients of the sectors**

	Mental distress	Concerns	Drugs consumption
Agriculture	0.237 (0.404)	-0.580 (0.323)	-0.020 (0.044)
Services	0.068 (0.080)	0.036 (0.095)	0.029 (0.022)
Industry	-0.098 (0.070)	-0.113 (0.067)	0.008 (0.015)
Retail	0.091 (0.121)	0.170* (0.081)	0.019 (0.032)
Construction	-0.081 (0.077)	0.366* (0.146)	-0.019 (0.048)
Education	0.263** (0.065)	0.039 (0.101)	0.012 (0.015)
Healthcare	0.352 (0.221)	0.339 (0.172)	-0.022 (0.027)
Mean	1.254	1.803	0.257
N	2,511	2,511	2,511

Notes: The residual category is *Other* which includes any other sector not mentioned in the list we proposed in the survey.

Table A6: **Results: Causes of mental distress**

	Depression	Sleeping problems	Anxiety	Panic	Fear
Agriculture	0.024 (0.048)	-0.012 (0.033)	0.015 (0.048)	0.039 (0.051)	0.010 (0.044)
Services	0.039** (0.018)	0.009 (0.015)	0.010 (0.017)	-0.032** (0.014)	-0.010 (0.014)
Industry	0.023 (0.019)	-0.016 (0.023)	0.003 (0.022)	-0.021 (0.020)	-0.010 (0.019)
Retail	0.021 (0.020)	-0.022 (0.021)	0.015 (0.024)	-0.015 (0.015)	0.002 (0.018)
Construction	0.027 (0.026)	-0.010 (0.039)	0.021 (0.029)	-0.071*** (0.019)	-0.015 (0.031)
Education	0.045* (0.024)	0.012 (0.025)	0.066*** (0.022)	0.012 (0.018)	0.057*** (0.017)
Healthcare	0.044 (0.046)	0.023 (0.020)	0.063* (0.034)	0.004 (0.027)	0.078** (0.027)
Mean	0.243	0.298	0.343	0.151	0.318
N	4,136	4,136	4,136	4,136	4,136

Notes: The residual category is *Other* which includes any other sector not mentioned in the list we proposed in the survey.

Table A7: **Results: Main causes of concern**

	Personal Health	Relatives Health	Financial Problems	Partner Problems	Stress on the Workplace
Agriculture	0.002 (0.055)	-0.084 (0.071)	-0.057 (0.038)	-0.034 (0.042)	0.032 (0.048)
Services	0.002 (0.017)	-0.014 (0.019)	-0.028 (0.023)	0.010 (0.012)	0.028 (0.017)
Industry	-0.016 (0.023)	-0.050** (0.023)	-0.075*** (0.016)	0.004 (0.021)	0.018 (0.015)
Retail	0.011 (0.022)	-0.003 (0.024)	0.006 (0.014)	-0.017 (0.015)	0.026** (0.009)
Construction	0.062 (0.060)	-0.007 (0.052)	0.008 (0.035)	0.009 (0.029)	0.037 (0.030)
Education	0.054** (0.025)	-0.019 (0.025)	-0.042* (0.024)	0.014 (0.019)	0.011 (0.020)
Healthcare	0.086** (0.037)	0.024 (0.035)	-0.050** (0.021)	0.031 (0.033)	0.132*** (0.025)
Mean	0.343	0.515	0.343	0.148	0.198
N	4,136	4,136	4,136	4,136	4,136

Notes: The residual category is *Other* which includes any other sector not mentioned in the list we proposed in the survey.

Table A8: Results: overall conditional on being employed at February 2020

	Mental distress		Concerns		Drugs consumption	
<i>Provincial level controls</i>						
Covid mortality	0.001 (0.000)	0.001 (0.000)	0.001** (0.000)	0.001** (0.000)	-0.000 (0.000)	-0.000 (0.000)
Gdp	0.027 (0.033)	0.029 (0.034)	0.023 (0.042)	0.027 (0.042)	0.016 (0.014)	0.015 (0.015)
<i>SES</i>						
School-aged Child	0.200* (0.115)	0.204* (0.116)	0.131 (0.117)	0.133 (0.117)	-0.000 (0.035)	-0.001 (0.034)
Children	-0.067 (0.146)	-0.073 (0.143)	0.158 (0.113)	0.149 (0.112)	0.033 (0.027)	0.034 (0.027)
Age 35-45	-0.322*** (0.083)	-0.312*** (0.081)	-0.328** (0.114)	-0.306** (0.114)	-0.042 (0.025)	-0.044* (0.024)
Age 45-55	-0.522*** (0.089)	-0.499*** (0.092)	-0.626*** (0.063)	-0.578*** (0.064)	-0.056** (0.020)	-0.058*** (0.018)
Age more 55	-0.566*** (0.100)	-0.536*** (0.099)	-0.815*** (0.118)	-0.763*** (0.116)	-0.044 (0.045)	-0.042 (0.043)
More100sqm	0.062 (0.078)	0.058 (0.077)	0.115* (0.058)	0.115* (0.056)	0.038* (0.021)	0.036* (0.021)
High school	-0.315*** (0.107)	-0.307*** (0.106)	-0.365*** (0.102)	-0.352*** (0.102)	-0.047* (0.025)	-0.045* (0.024)
College	-0.091 (0.078)	-0.100 (0.082)	0.006 (0.089)	0.004 (0.083)	-0.003 (0.017)	-0.001 (0.018)
Married	0.118 (0.100)	0.127 (0.096)	-0.076 (0.068)	-0.063 (0.066)	0.008 (0.012)	0.009 (0.013)
Religious	0.207** (0.075)	0.214*** (0.073)	0.422*** (0.111)	0.426*** (0.108)	0.029 (0.023)	0.032 (0.024)
<i>Employment</i>						
Permanent pre-COVID-19	0.003 (0.075)	0.017 (0.077)	-0.057 (0.094)	-0.054 (0.095)	0.011 (0.025)	0.008 (0.024)
Full time pre-COVID-19	0.089 (0.076)	0.108 (0.075)	0.102 (0.075)	0.124 (0.076)	0.003 (0.018)	0.002 (0.018)
Partner: Permanent pre-COVID-19	-0.359*** (0.120)	-0.355*** (0.119)	-0.206** (0.097)	-0.193* (0.096)	-0.034 (0.039)	-0.035 (0.038)
Partner:Full time pre-COVID-19	0.011 (0.078)	-0.001 (0.077)	-0.186** (0.078)	-0.202** (0.084)	-0.065** (0.023)	-0.065*** (0.022)
Partner:Retired pre-COVID-19	-0.044 (0.141)	-0.035 (0.142)	0.130 (0.252)	0.123 (0.249)	0.128*** (0.037)	0.130*** (0.039)
Partner:Unemployed before COVID-19	-0.489* (0.240)	-0.493* (0.240)	-0.175 (0.155)	-0.181 (0.158)	-0.133** (0.052)	-0.134** (0.053)
Public sector	0.271*** (0.070)		0.273*** (0.070)		0.023 (0.019)	
<i>Present Concerns</i>						
Jobloss due to COVID-19	0.207** (0.093)	0.209** (0.097)	0.184 (0.118)	0.198 (0.124)	0.031 (0.038)	0.029 (0.038)
Remote work	-0.045 (0.044)	-0.009 (0.050)	-0.016 (0.104)	0.045 (0.121)	0.026 (0.020)	0.029* (0.016)
Partner: Remote work	0.185*** (0.057)	0.176*** (0.057)	0.255** (0.101)	0.227** (0.099)	0.078*** (0.021)	0.080*** (0.021)
Lockdown high value	-0.053 (0.047)	-0.057 (0.045)	0.222*** (0.071)	0.216*** (0.071)	-0.055** (0.020)	-0.054** (0.019)
<i>Future Expectations</i>						
Fear to lose the job	0.676*** (0.101)	0.669*** (0.099)	0.934*** (0.087)	0.926*** (0.090)	0.104*** (0.015)	0.102*** (0.014)
Fear partner loses the job	0.390*** (0.068)	0.394*** (0.070)	0.500*** (0.051)	0.501*** (0.054)	0.067*** (0.012)	0.067*** (0.012)
Covid on Jobs	0.378*** (0.069)	0.377*** (0.068)	0.366*** (0.084)	0.360*** (0.081)	-0.016 (0.034)	-0.017 (0.035)
Covid on Health	0.383*** (0.061)	0.395*** (0.063)	0.621*** (0.080)	0.636*** (0.079)	0.051* (0.026)	0.053** (0.025)
Sectors	No	Yes	No	Yes	No	Yes
Mean	1.315	1.315	1.946	1.946	0.266	0.266
N	4,136	4,136	4,136	4,136	4,136	4,136

Notes: Each specification includes macro areas fixed effects (*i.e.*, North West, North East, Center, South, Islands), and Sectors includes: Agriculture, Services, Industry, Education, and Healthcare, while we use as reference category *Other*, which includes sectors different from the aforementioned. The standard errors are clustered at the region of residence level. *** p<0.01, ** p<0.05, * p<0.1. The reference category for age is the dummy for women younger than 35. For an explanation of the variables see Table A3.

Table A9: **Results: overall, coefficients of the sector conditional on working at February 2020**

	Mental distress	Concerns	Drugs consumption
Agriculture	0.398 (0.252)	0.293 (0.524)	-0.058 (0.056)
Services	0.046 (0.061)	0.061 (0.077)	0.020 (0.026)
Industry	0.024 (0.078)	-0.061 (0.107)	0.064** (0.024)
Retail	0.125 (0.085)	0.181** (0.083)	0.021 (0.023)
Construction	-0.030 (0.120)	0.320 (0.221)	-0.046 (0.038)
Education	0.237*** (0.071)	0.112 (0.100)	0.019 (0.013)
Healthcare	0.333** (0.129)	0.476*** (0.152)	0.017 (0.041)
Mean	1.315	1.946	0.266
N	2,967	2,967	2,967

Notes: The residual category is *Other* which includes any other sector not mentioned in the list we proposed in the survey.

Table A10: Stereotypes as drivers conditional on being employed before February 2020

	Mental distress			Concerns		
	Stereotype ISTAT	Working Ratio	Stereotype Survey	Stereotype ISTAT	Working Ratio	Stereotype Survey
Stereotype	0.251*	0.043	0.075	0.247**	0.546	0.601***
	(0.135)	(0.268)	(0.108)	(0.107)	(0.363)	(0.145)
Stereotype*Covid mortality rate x100k	-0.000	0.001	0.001**	-0.001	-0.003	0.000
	(0.002)	(0.002)	(0.001)	(0.003)	(0.003)	(0.001)
Stereotype*Jobloss due to Covid	-0.022	-0.244	0.061	-0.243***	-0.595**	-0.190
	(0.084)	(0.335)	(0.348)	(0.058)	(0.258)	(0.263)
Stereotype*Fear to lose the job	-0.194**	-0.451**	0.188	-0.134	-0.388	0.258**
	(0.074)	(0.172)	(0.130)	(0.110)	(0.245)	(0.094)
Stereotype*Fear partner loses the job	0.040	-0.207	0.250**	0.084	0.182	0.110
	(0.063)	(0.159)	(0.118)	(0.079)	(0.146)	(0.154)
Stereotype*Lockdown high value	-0.066	-0.008	0.050	-0.090	-0.122	-0.071
	(0.051)	(0.115)	(0.116)	(0.089)	(0.234)	(0.094)
Stereotype*Remote work	-0.049	-0.374**	-0.007	-0.014	-0.250	0.217*
	(0.035)	(0.137)	(0.145)	(0.114)	(0.223)	(0.115)
Stereotype*Covid on Jobs	0.084*	0.419***	-0.154	0.033	0.073	-0.284**
	(0.046)	(0.137)	(0.150)	(0.084)	(0.291)	(0.135)
Stereotype*Covid on Health	0.021	0.233	0.244*	0.045	0.266	-0.020
	(0.094)	(0.217)	(0.125)	(0.108)	(0.194)	(0.134)
Covid mortality rate x100k	0.001	0.000	0.001	-0.000	0.002	0.001**
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.000)
<i>Present Concerns</i>						
Jobloss due to Covid	0.203**	0.326	0.196*	0.164	0.475**	0.161
	(0.092)	(0.236)	(0.108)	(0.095)	(0.171)	(0.114)
Remote work	-0.022	0.163*	-0.015	0.042	0.167	0.045
	(0.044)	(0.078)	(0.046)	(0.113)	(0.197)	(0.114)
Lockdown high value	-0.071	-0.051	0.053	0.195**	0.271**	0.395***
	(0.047)	(0.058)	(0.056)	(0.074)	(0.108)	(0.063)
<i>Future Expectations</i>						
Fear to lose the job	0.631***	0.872***	0.638***	0.899***	1.099***	0.870***
	(0.080)	(0.093)	(0.099)	(0.093)	(0.129)	(0.082)
Fear partner loses the job	0.408***	0.485***	0.324***	0.527***	0.424***	0.413***
	(0.068)	(0.123)	(0.061)	(0.063)	(0.084)	(0.052)
Covid on Jobs	0.398***	0.201*	0.394***	0.361***	0.327**	0.388***
	(0.057)	(0.110)	(0.064)	(0.076)	(0.147)	(0.077)
Covid on Health	0.395***	0.292***	0.379***	0.648***	0.522***	0.611***
	(0.081)	(0.098)	(0.063)	(0.091)	(0.127)	(0.078)
SES Controls	Yes	Yes		Yes	Yes	Yes
Sectors	Yes			Yes	Yes	Yes
Mean	1.315	1.315		1.946	1.946	0.266
N	2967	2967		2967	2967	2967

Notes: Each specification includes macro area fixed effects (*i.e.* North West, North East, Center, South, Islands) and

Table A11: Results: Robustness Check - Controls

	Mental distress	Concerns	Drugs consumption
<i>More Controls</i>			
Financial Distress	0.623*** (0.051)	0.804*** (0.062)	0.102*** (0.016)
Health Status=1	0.978* (0.525)	1.132** (0.493)	0.262** (0.114)
Health Status=2	0.774*** (0.109)	0.663*** (0.169)	0.191*** (0.033)
Health Status=3	0.145 (0.112)	0.056 (0.156)	0.063** (0.028)
Health Status=4	0.179* (0.102)	0.009 (0.172)	0.020 (0.015)
<i>Provincial level controls</i>			
COVID-19 mortality	0.001*** (0.000)	0.001*** (0.000)	0.000 (0.000)
Gdp	-0.010 (0.029)	0.008 (0.034)	0.002 (0.009)
<i>Present Concerns</i>			
Jobloss due to COVID-19	0.144 (0.108)	0.091 (0.103)	0.013 (0.034)
Remote work	0.026 (0.034)	0.099 (0.107)	0.030 (0.020)
Partner: Remote work	0.129* (0.065)	0.135 (0.095)	0.065*** (0.020)
Lockdown high value	0.014 (0.074)	0.241** (0.086)	-0.046*** (0.014)
<i>Future Expectations</i>			
Fear to lose the job	0.509*** (0.087)	0.646*** (0.086)	0.059*** (0.011)
Fear partner loses the job	0.182** (0.071)	0.262*** (0.052)	0.034** (0.016)
COVID-19 on Jobs	0.321*** (0.067)	0.306*** (0.056)	-0.005 (0.027)
COVID-19 on Health	0.280*** (0.052)	0.532*** (0.062)	0.021 (0.024)
SES Controls	Yes	Yes	Yes
Sectors	Yes	Yes	Yes
N	4,136	4,136	4,136

Notes: Each specification includes macro areas fixed effects (*i.e.*, North West, North East, Center, South, Islands), and *Sectors* includes: Agriculture, Services, Industry, Retail, Construction, Education, and Healthcare, while we use as reference category *Other*, which includes sectors different from the aforementioned. The standard errors are clustered at the region of residence level. *** p<0.01, ** p<0.05, * p<0.1. The reference category for health status is the dummy for "very good health" (health status=5). For an explanation of the variables see Table A3.

Table A12: Results: Robustness Check - Alternative Outcomes

	Mental distress		Concerns	
	Weighted	PCA	Weighted	PCA
<i>Provincial level controls</i>				
COVID-19 mortality	0.000*** (0.000)	0.001*** (0.000)	0.000*** (0.000)	0.001*** (0.000)
Gdp	0.002 (0.006)	0.009 (0.032)	0.004 (0.005)	0.029 (0.029)
<i>Present Concerns</i>				
Jobloss due to COVID-19	0.039* (0.020)	0.199* (0.100)	0.022 (0.017)	0.111 (0.108)
Remote work	0.003 (0.009)	0.015 (0.046)	0.013 (0.017)	0.081 (0.104)
Partner: Remote work	0.022* (0.012)	0.119* (0.063)	0.017 (0.013)	0.118 (0.080)
Lockdown high value	-0.008 (0.014)	-0.052 (0.074)	0.025** (0.011)	0.096 (0.071)
<i>Future Expectations</i>				
Fear to lose the job	0.129*** (0.017)	0.658*** (0.085)	0.118*** (0.012)	0.711*** (0.071)
Fear partner loses the job	0.069*** (0.013)	0.350*** (0.066)	0.067*** (0.008)	0.406*** (0.048)
COVID-19 on Jobs	0.084*** (0.013)	0.421*** (0.064)	0.062*** (0.008)	0.364*** (0.048)
COVID-19 on Health	0.066*** (0.012)	0.333*** (0.059)	0.085*** (0.010)	0.512*** (0.063)
SES Controls	Yes	Yes	Yes	Yes
Sectors	Yes	Yes	Yes	Yes
Mean Dep. Var	0.271	1.369	0.272	1.625
N	4,136	4,136	4,136	4,136

Notes: Each specification includes macro areas fixed effects (*i.e.*, North West, North East, Center, South, Islands), and *Sectors* includes: Agriculture, Services, Industry, Retail, Construction, Education, and Healthcare, while we use as reference category *Other*, which includes sectors different from the aforementioned. The standard errors are clustered at the region of residence level. *** p<0.01, ** p<0.05, * p<0.1. For an explanation of the variables see Table A3.

Table A13: Balance tests: First and Second Wave Samples

	All sample	Second Wave	Difference
		p-value	
School-aged child	0.43 (0.50)	0.40 (0.49)	0.20
Children	0.61 (0.49)	0.61 (0.49)	0.90
Age group	2.29 (1.08)	2.50 (1.07)	0.00***
More100sqm	0.37 (0.48)	0.38 (0.49)	0.82
High school	0.80 (0.40)	0.81 (0.39)	0.55
College	0.34 (0.47)	0.32 (0.47)	0.42
Married	0.47 (0.50)	0.51 (0.50)	0.07
Religious	0.18 (0.38)	0.20 (0.40)	0.36
Permanent pre-COVID-19	0.52 (0.50)	0.53 (0.50)	0.71
Full time pre-COVID-19	0.47 (0.50)	0.44 (0.50)	0.15
Housewife pre-COVID-19	0.14 (0.34)	0.13 (0.34)	0.72
Unemployed pre-COVID-19	0.15 (0.35)	0.16 (0.37)	0.29
Partner: Permanent pre-COVID-19	0.50 (0.50)	0.52 (0.50)	0.55
Partner:Full time pre-COVID-19	0.51 (0.50)	0.51 (0.50)	0.96
Partner:Retired pre-COVID-19	0.04 (0.19)	0.05 (0.23)	0.14
Partner:Unemployed pre-COVID-19	0.04 (0.20)	0.04 (0.19)	0.66
Jobloss due to COVID-19	0.03 (0.18)	0.03 (0.17)	0.54
Fear to lose the job	0.33 (0.47)	0.28 (0.45)	0.02*
Fear partner loses the job	0.21 (0.41)	0.32 (0.47)	0.00***
Remote working	0.28 (0.45)	0.27 (0.44)	0.40
Partner: Remote working	0.14 (0.35)	0.13 (0.34)	0.44
Lockdown high value	0.76 (0.43)	0.78 (0.41)	0.33
COVID-19 on Jobs	0.81 (0.39)	0.84 (0.37)	0.09
COVID-19 on Health	0.72 (0.45)	0.74 (0.44)	0.32
Agriculture	0.02 (0.14)	0.02 (0.13)	0.87
Services	0.21 (0.41)	0.23 (0.42)	0.54
Industry	0.10 (0.30)	0.10 (0.30)	0.81
Retail	0.21 (0.41)	0.19 (0.39)	0.19
Construction	0.04 (0.19)	0.04 (0.19)	0.95
Education	0.10 (0.30)	0.13 (0.34)	0.03*
Healthcare	0.07 (0.26)	0.08 (0.27)	0.67

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Notes: For an explanation of the variables see Table A3.

Table A14: Gender Stereotype Indexes

Index (level of variation)	Meaning	Content
Stereotype ISTAT (regional)	z-score: average of the standardized national distribution of replies to the 3 statements	How much do you agree with the following statement (1.totally agree, 4.do not agree at all) <ol style="list-style-type: none"> 1. men are less suitable for domestic chores 2. when jobs are scarce, employers should prioritize men over women 3. men more than women should be the breadwinners
Working Ratio (provincial)	Difference between male and female employment for individuals older than 54, weighted for the female (over 54) employment (0 being equal employment)	Employment rates
Stereotype Survey (individual)	z-score: average of the national standardized distribution of replies to the 8 statements	Replies to question 5 in Appendix Table C3

Notes: When we refer to the first wave of COVID-19, we refer to the first wave which took place in Italy from the end of February 2020 to June 2020.

Table A15: **Variable Definition - Second wave**

Variable	Definition
Financial distress	dummy=1 when the respondent declares to have some financial distress due to the COVID-19
Red weeks	discrete variable equal to the number of weeks in "red zone" from November 2020 to February 2021 (regional-level)
Orange weeks	discrete variable equal to the number of weeks in "orange zone" from November 2020 to February 2021 (regional-level)
Yellow weeks	discrete variable equal to the number of weeks in "yellow zone" from November 2020 to February 2021 (regional-level)
COVID-19 intensity	variation in the number of deaths reported in 2020 compared to the average 2015-2019 (March-November 2020)
February 2021	dummy=1 if the observations is referred to the second wave of the survey
Health status: Extremely poor	dummy=1 if the respondent declares having an extremely poor health status (SAH=1)
Health status: Poor	dummy=1 if the respondent declares having a poor health status (SAH=2)
Health status: Average	dummy=1 if the respondent declares having an average health status (SAH=3)
Health status: Good	dummy=1 if the respondent declares having a good health status (SAH=4)

Notes: variables collected during the second wave of the survey performed in February 2021.

Appendix B

This Appendix presents simulations run using baseline coefficients.

In order to give a sense of the relative role played by individual characteristics in explaining variations in the main outcome, *Mental Distress*, we graphically present simulated levels of *Mental Distress* stratifying by individual information. We proceed estimating the fitted values from equation 2 on *Mental distress* and plotting their average values, while comparing individual characteristics, present concerns and future expectations. Since age has been proved to be a relevant predictor and it is likely correlated with other individual information, all graphs include a stratification by *Age group*. Results are presented in Figures B1 and B2.

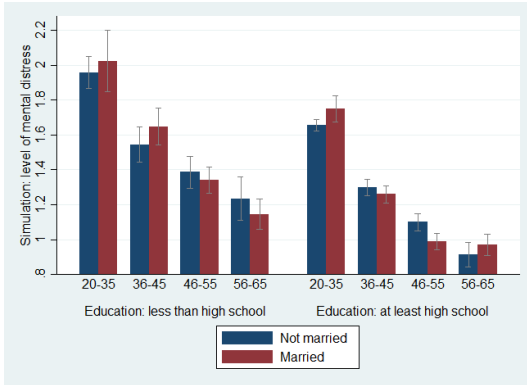
Overall, the strong gradient by age group overcome any alternative stratification: younger cohorts reports significantly higher level of mental distress. These findings are also observed when controlling for demographics or professional characteristics and are consistent with recent literature showing that younger cohorts are suffering from higher level of distress because of the outbreak of the pandemic (Bordalo et al. (2020), Davillas and Jones (2021)). In Panel (a) of Figure B1, we are able to exclude the effect of age is different by marital status, yet it is amplified for individuals with lower levels of education. The economic stability of the household influences the level of distress as well. Results in Panel (b) shows that the absence of permanent contract by any household member (respondent and partner) has an increasing effect on mental health. Within the same age group, a permanent contract acts as a protection against negative mental health outcomes, especially when the partner does not have one, while it becomes irrelevant in the opposite case. In Figures B1 Panels (c) and (d) we show the interactions between having kids and employment conditions during the first wave, alternatively looking at full-time vs part-time contracts (c) or remote vs in-presence working (d). Through this exercise we want to identify any possible channel of work-life balance which negatively affects mental health. First, within age groups for women with school-aged kids full-time employment or remote working have no differential effects with respect to the alternatives. Second, having a full time vs part-time time contract does not mean reporting differential levels of mental distress, and this is true independently of the number of children (Panel (c)). Finally, across different types of households (no kids, no school-aged kids, and school-aged kids), women in remote working with school-aged kids report higher levels of mental health distress if compared

to women with no kids or with older children (Panel (d)). Overall, women with school-aged kids seem to report higher levels of mental distress, in particular if younger, yet within age categories being in remote working or not does not change it. Women with no school-aged kids, within age groups, report higher levels of mental distress if they are not working in remote. The fear to lose the job is definitely a driver of mental health, especially if combined with the fear to that also the partner might lose the job as shown in Figures B1 Panel (e). This fact holds across all age groups. Panel (f) shows that if the job has already been lost the level of mental distress observed in this group is not statistically different from that of individuals who are still employed, yet the fear that the partner may also lose the job can have a negative impact on mental health. As already pointed out in the previous part of the paper, the uncertainty about the future, likely to be linked to the social status of the job position is a major driver of mental health, more than the actual job loss.

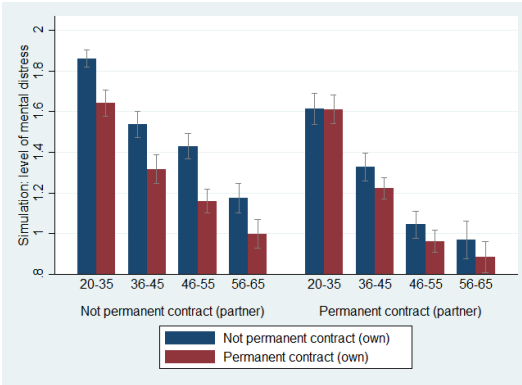
Finally, we run a similar exercise with reference to the local severity of the pandemic measured by the COVID-19 mortality rate (Figure B2).¹⁹ However, when stratifying by age-group and alternative socio-economic and professional conditions, the local severity in COVID-19 outbreak does not seem to affect the level of mental distress differently. The differences that matter are more at the level of some socio-economic characteristics, in particular age and education, independently from the local severity, with younger and lower educated women reporting higher mental distress. As before, negative expectations about the future (*i.e.*, concerns about labour market conditions, about access to care, fear to lose the job) predict the highest level of mental distress, while present concerns, like actual job loss, continue to play a minor role.

¹⁹The measure of *COVID-19 Mortality Rate* is simplified to allow the graphical representation of the simulation. The continuous measure of mortality rate is used to create a dummy equal to 1 (*i.e.*, high severity) when the *COVID-19 Mortality Rate* is above the median value.

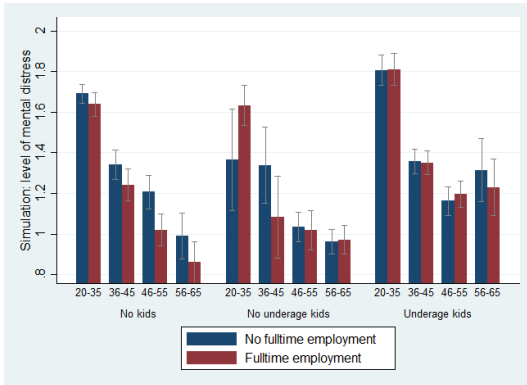
Figure B1: Simulation (1)



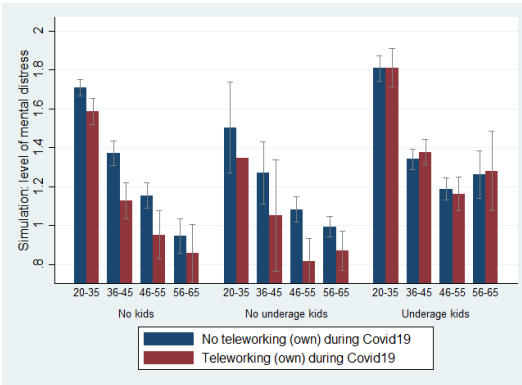
(a) Socio-demographic characteristics



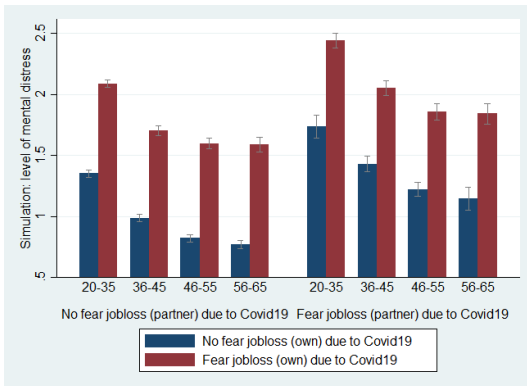
(b) Economic stability of the household



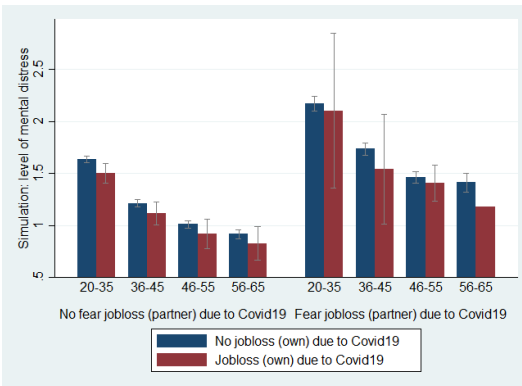
(c) Kids and employment



(d) Kids and remote work



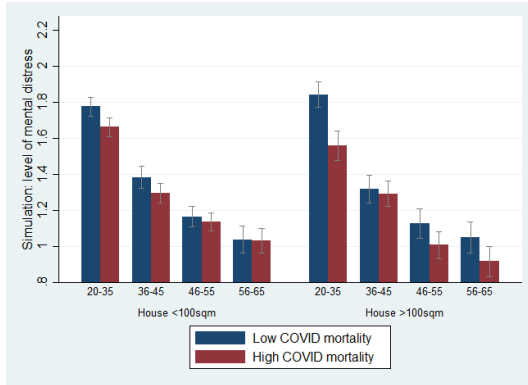
(e) Fear COVID-19 jobloss



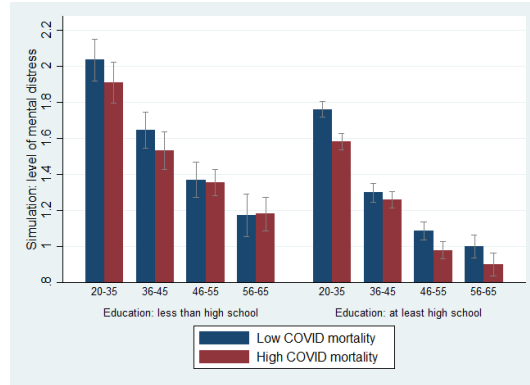
(f) COVID-19 jobloss

Notes: The Figure presents the first set of simulations. Fitted values are presented stratifying by individual characteristics. Confidence intervals at 95%.

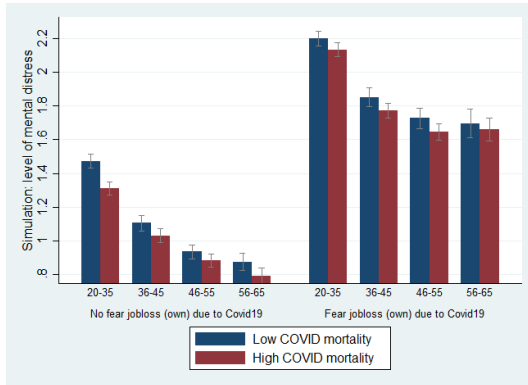
Figure B2: Simulation (2) - COVID-19 mortality



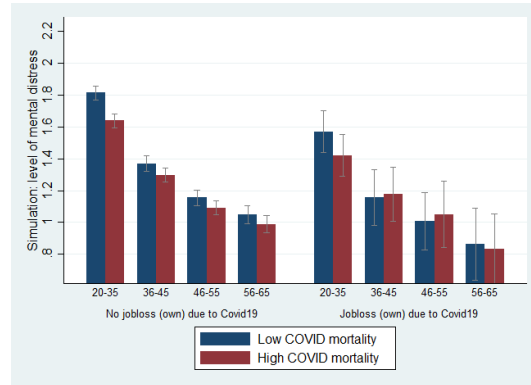
(a) House dimension



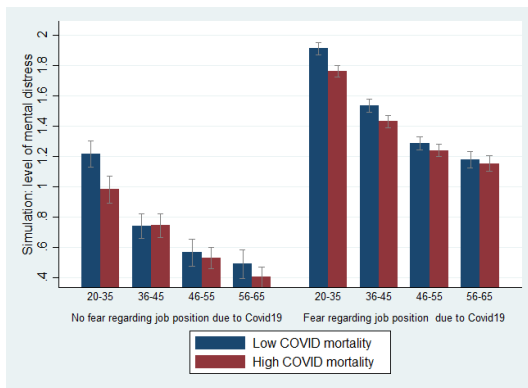
(b) Education



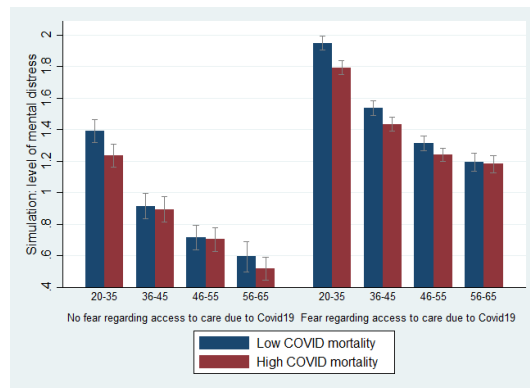
(c) Fear COVID-19 jobloss



(d) COVID-19 jobloss



(e) Fear job position



(f) Fear access to care

Notes: The Figure presents the second set of simulations. Fitted values are presented stratifying by individual characteristics. Confidence intervals at 95%.

Appendix C

This Appendix provides additional information over the survey.

Table C1: **Population compared with our Survey**

Areas	Our Survey		ISTAT data	
	obs.	%	obs.	%
Piemonte and Valle d'Aosta	412	9.23	1,304,196	8.14
Lombardia	965	21.62	2,991,892	18.66
Trentino Alto Adige/Südtirol	100	2.24	320,308	2.00
Veneto	471	10.55	1,460,426	9.11
Friuli-Venezia Giulia	110	2.46	350,341	2.19
Liguria	153	3.43	440,301	2.75
Emilia-Romagna	439	9.84	1,333,100	8.32
Centre	818	18.33	3,596,223	22.43
South	995	22.29	4,233,172	26.41
Total	4,463		16,029,959	
<i>Average characteristics</i>				
Average Age	42.2		44.5	

Source: Population 1st January 2020 from the Italian National Institute of Statistics

Table C2: Questions used to measure Self-Reported Mental Health

Mental Distress	
Question 1	During/After the COVID-19 crisis, how common was one of the following situations? <i>a. feeling depressed, without hope;</i> <i>b. feeling nervous, anxious, borderline;</i> <i>c. having problems sleeping or falling asleep;</i> <i>d. being afraid that negative event might happen;</i> <i>e. having a panic attack (sudden feeling of fear or panic)</i>
Answer	always, very often, often, almost never, never

Concerns	
Question 2	During/After the COVID-19 crisis, has it ever happened to you to feel worried about: <i>a. your health;</i> <i>b. your relatives' health;</i> <i>c. your partner relationship;</i> <i>d. the relationship with your family of origin;</i> <i>e. nobody to talk to;</i> <i>f. stress at the workplace;</i> <i>g. financial troubles;</i>
Answer	always, very often, often, almost never, never

Drug Consumption	
Question 3	During/After the Covid-19 crisis, how common has one of the following situation been? <i>a. drugs to help with anxiety, with doctor prescription</i> <i>b. drugs to help with anxiety, without doctor prescription</i> <i>c. drugs to help with insomnia, with doctor prescription</i> <i>d. drugs to help with insomnia, without doctor prescription</i>
Answer	yes, no

The Table reports the original questions asked in the survey to assess mental health distress, concerns, and drug consumption.

Table C3: Question used to measure Gender Stereotypes

Question	How much do you agree with the following statement
	<i>a. in general, men are better political leaders</i>
	<i>b. in general, men are better managers than women</i>
	<i>c. if in a relationship the women earns more than the man, this can generate distress to the relationship</i>
	<i>d. family life might be put on strain if a woman has a full time job</i>
	<i>e. it is preferable not to use childcare for toddlers, as very small children are better off at home</i>
	<i>f. childcare for toddlers is useless, as you still need a baby-sitter to reconcile professional and family life</i>
	<i>g. childcare for toddlers is important for their development</i>
	<i>h. we need more parental leaves for fathers</i>
Answer	1.totally agree, 4.do not agree at all

Notes: Detailed description of the question included in the survey to measure individual gender stereotypes.