The impact of COVID-19 lockdowns on children's health and well-being

Samreen Malik* Benedikt Mihm† Antje von Suchodoletz‡

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Abstract

This paper studies the impact of COVID-19 lockdowns on the health and well-being of children in a developing country context. Using surveys for low-income households in rural areas of Pakistan, we find that lockdowns have a significantly negative impact on the health and well-being of children. Exploring potential mechanisms behind the negative impact of lockdowns, we find that children participating in the labor market due to extreme poverty suffer the worst impact from lockdowns. These results call for policies that target resources towards households where children's participation in the labor market is more likely and simultaneously the establishment of health programs to support the well-being of vulnerable children who work.

Key words: COVID-19, Health and well-being, Lockdowns, School closure, Child labor, Psychology.
JEL codes: I12, I15, I25, I31, J13

*Email: samreen.malik@nyu.edu. New York University (AD).
†Email: benedikt.mihm@ovgu.de. Magdeburg University.
‡Email: avs5@nyu.edu. New York University (AD).

1 Introduction

The COVID-19 pandemic has had an unprecedented impact on the development of children around the world, with over 1.6 billion children being out of school at some point in 2020 as part of lockdown measures (United Nations, 2020).[1] The massive ongoing disruption to the school system in many developing countries will likely have far-reaching and detrimental consequences that, importantly, go well beyond education and include a child's physical and mental well-being. Due to weak health infrastructures, developing countries have a heightened risk of their populations developing severe forms of COVID-19 and possibly dying due to the limited availability of hospital care and the unequal distribution of COVID-19 vaccines (Ataguba and Ataguba, 2020). Although children appear to be less vulnerable to COVID-19 compared to adults, side effects do exist (de Araújo et al., 2020; de Figueiredo et al., 2021). In addition, drastic and sudden changes to children's daily lives impact their mental health, diet, sleep habits, and quality of life. For example, one study surveying parents of children aged 7-13 years in Turkey found that during the pandemic, children gained weight, their tendency to sleep increased, and the lockdown negatively impacted their emotional well-being and self-esteem (Adıbelli and Sümen, 2020). Furthermore, the closure of schools, in concert with the restriction of outdoor activities during lockdowns, may lead to social isolation and feelings of loneliness with consequences for children's mental health and well-being (de Figueiredo et al., 2021).

The consequences of lockdowns on children's health and well-being in developing countries are therefore potentially devastating, and the United Nations has rightly urged actions to be taken to prevent the "crisis from becoming a generational catastrophe". In this regard, science has the responsibility to contribute data and analyses to inform policy responses that are tailored to specific contexts(Schleicher, 2020; Thomas and Rogers, 2020). However, while important work has been performed looking at children's outcomes due to lockdowns in developed countries (e.g., Baron et al., 2020; Pietrobelli et al., 2020; Parolin and Lee, 2021; Takaku and Yokoyama, 2021), such studies are unlikely to be sufficiently informative in the context of developing countries. Due to the lack of a sufficient safety net, the negative economic impact of lockdowns may affect children in developing countries particularly badly due to the well-established link between a negative economic situation and worse children's health and well-being (Flores et al., 1999; Beegle et al., 2009; Ibrahim et al., 2019). The additional stress induced by the worsened financial situation may also erode parents' ability to function efficiently, their mental health, and their quality of parenting (Spinelli et al., 2020), which can have a negative effect on their children's well-being. Moreover, low-income households in developing countries often make a difficult choice between

[1] The United Nations. 2020. "Policy Brief: Education during COVID-19 and beyond." https://unsdg.un.org/resources/policy-brief-education-during-covid-19-and-beyond.

their child's schooling and participation in work (e.g., Baland and Robinson, 2000), a decision that is far different from that faced by parents from a developed economy.

In this paper, we turn our attention to the impact of COVID-19-related lockdowns on the health and well-being of children in a developing country context. In particular, we make use of contacts we made for other work pre-COVID with a large sample of low-income households with public school children in the Kasur region of Punjab, Pakistan. The context of Pakistan lends itself well to our research question because of the generally poor education system in the country, the continued importance of child work, and the lack of health care facilities, which are common issues faced by many other developing economies.

We derived our sample by recontacting parents from whom we collected the initial data in 2018. Having this sample to draw upon has the important advantage that, from our earlier work, we know that these are all low-income households that have at least one child that, while of school age, has a meaningful likelihood of engaging in economic activity for the household. As such, while the sample is not representative of Pakistan or developing countries as whole, it represents outcomes of some of the most vulnerable children because of the low-income environment and the potential additional burden of increased work activity. For the survey, parents were contacted twice by phone in 2020, first in August/September (wave one) and then again in November/December (wave two), both times when schools were closed during nationally instituted lockdowns. Parents were asked about their children's health and well-being (these variables included aspects of physical, mental and social health), the child's economic work activity, and their own economic status and mental health.

One of the key challenge we had to overcome when designing the survey was how to collect pre-COVID information. Using our 2018 data as baseline pre-COVID data was not feasible as we did not have information on health and well-being from this earlier study and 2018 is arguably too long in the past to use as the pre-COVID baseline for early 2020. The data for pre-COVID (baseline) is therefore taken from the August/September survey by asking parents to recall information from immediately prior to the pandemic lockdown. This approach is common in other scenarios where, in contrast to collecting retrospective information, investigators are interested in collecting data for counterfactual situations. Several studies (Giustinelli and Shapiro, 2019; Arcidiacono et al., 2020; Aucejo et al., 2020; Wiswall and Zafar, 2021) rely on this type of survey design. For example, Aucejo et al. (2020) asks subjects to provide their expectation on how their GPA would have been in the absence of the pandemic. While the retrospective pretest and counterfactual scenario differ in terms of the *state* in question, the common usage of the design underscores that many studies rely on respondents providing information about two states in one period. Nevertheless, recall bias is often cited as a major issue in such surveys. However, there is evidence in the literature that shorter recall periods for micro data reduce recall bias (Kjellsson

et al., 2014), and a salient period of reference is an important factor in whether the retrospective accounts are subject to recall decay (Loftus and Marburger, 1983; Smith and Thomas, 2003; Judge and Schechter, 2009). The combination of the recall period being relatively short (7 months) and the significance of the event in question (global pandemic) should both help to minimize the recall bias in our study.

Exploiting the panel structure of our data, we first find that all our measures of health and well-being of children worsened significantly during both lockdown one and lockdown two relative to prior to the lockdowns. Moreover, while some measures such as physical health appear to be worse in lockdown two, others such as mental health and life quality appear to actually improve during the second lockdown, suggesting some adaption to the circumstances. We also find that while both male and female children are negatively affected by the lockdowns, male children fair worse in some measures of well-being in the first lockdown.

We next explore economic and noneconomic mechanisms behind the negative impact of lockdowns on children's health and well-being. In terms of economic mechanisms, we find that a worse economic state based on household income plays only a marginal role in the worsened health and well-being of children during the lockdowns. However, extreme poverty that led to children participating in the labor market appears to be a key driver of the negative impact of lockdowns. In particular, the impact of lockdowns for working children in terms of their physical health, mental health, satisfaction with social relations, and quality of life are all significantly worse relative to that for a child who does not work. Other mechanisms, such as psychological state of the parent and the parental support, play minimal roles. These results call for policies designed to establish health programs to support the health and well-being of vulnerable children, combined with targeting resources towards households where children's participation in the labor market is likely.

2 Pandemic lockdowns and children's well-being

Nationwide pandemic lockdowns coincided with school closures and led to numerous restrictions on social interactions. Such limitations can have a direct impact on children's well-being. Research has shown that peer relationships, particularly friendships, play an important role in children's well-being and facilitate a reciprocal support system for regulating emotions (Hay et al., 2004; Rubin et al., 2005). However, lockdowns hindered interactions with friends and nonfamily members. While children in developed economies could continue some mode of social exchange through digital means, in developing economies, low-income households do not have access to the internet or low-cost telephonic means to sustain remote connection. We, therefore, expect that lockdown periods themselves can have a strong negative effect on children's well-being by

hindering social interactions primarily due to school closure. However, there are also economic and noneconomic mechanisms through which pandemic lockdowns can affect the well-being of young children.

Economic Mechanisms: The first mechanism pertains to economic worries associated with the pandemic impacting a household's income and the subsistence of low-income families. This economic channel is particularly relevant in developing economies, where the lack of a safety net can shape children's present and future. This scenario has been attested by long-standing research in economics showing that even short-run income variability in low-income countries can affect children's schooling rates and engagement in labor (see Jacoby and Skoufias, 1997; Beegle et al., 2006; Edmonds, 2006). The direct impact of a negative economic situation on children's health and well-being (Flores et al., 1999; Beegle et al., 2009; Ibrahim et al., 2019) is also well-established. The pandemic has wreaked havoc on family incomes, with no or limited support from the government. Economic problems and anxiety, especially among low-income households, is prominent during the pandemic and its impact is devastating, as documented for African countries, where 256 million individuals – approximately 77% of the population – lived in households that experienced lost income during the pandemic (Josephson et al., 2021).

Another economic mechanism that is specific to developing countries is child's engagement in the labor market. The prevalence of child labor in developing countries is in stark contrast to the protected status of children in developed economies. In particular, the International Labour Organization (ILO) reports that most of the approximately 265 million working children around the world are from developing economies. As a result, in developing economies, child labor is common (Edmonds, 2007; Bharadwaj et al., 2020); children have opportunities to work productively and contribute to their household income. However, whether children engage in economic activity is decided by the parents (Becker and Tomes, 1979, 1986)[2], who often face a complex decision to choose between their child's schooling and child labor market participation (e.g., Baland and Robinson, 2000).

Economic worries alone can impact the well-being of children, but, more importantly, extreme poverty is expected to lead many parents to resort to having their child work. Limited economic resources is the primary reason cited by the literature for children's engagement in labor (Hanushek, 1992; Patrinos and Psacharopoulos, 1997). A report by the ILO and the UN children's fund (UNICEF) warns that "globally, nine million additional children are at risk of being pushed into child labour by the end of 2022 as a result of the pandemic, which could rise to 46 million without access to critical social protection coverage."

[2]Indeed, the notion of children being dependent agents and their parents making decisions is embedded in the theoretical models of Becker and Tomes (1979, 1986) and, in more recent work, Doepke and Zilibotti (2017).

Premature engagement of children in economic activity leads to exposure to dangerous environments at work, which are known to impact children's health (see Ibrahim et al. (2019) for a systematic literature review). The impacts go well beyond physical health and encompass psychological problems, as research indicates that in certain areas of Pakistan, 90 percent of working children under the age of 14 years have been sexually harassed or exploited.[3] Working children are, therefore, more vulnerable than nonworking children, and the extreme poverty linked to the COVID-19 pandemic is likely to have made matters worse. Moreover, the effect of the lockdown may be mediated through engagement in child labor due to extreme poverty.

Noneconomic Mechanisms: The second mechanism is via an intergenerational channel, whereby parents own psychological state is affected by the lockdown, which can indirectly affect their children's well-being. The accumulation of economic worries, health concerns and increased responsibilities of child care during school closure are all likely factors that are particularly stressful for parents and families (Prime et al., 2020). Past research has shown that stressors such as those related to the pandemic, including quarantine, social isolation, and financial stress, can erode parents' ability to function efficiently, their mental health, and their quality of parenting (Spinelli et al., 2020).

Moreover, the unusual events surrounding the pandemic and the lockdown may cause heightened worries among children whereby they look towards their parents for comfort (Thompson, 2000). However, during the lockdown, parent's own psychological state may impact their ability to meet their child's heightened needs adequately, especially to assume the role of an educator during school closures. Lack of parental support can therefore be another channel that could negatively affect children's health and well-being during a lockdown.

In this paper, we aim to study the impact of lockdowns on children's health and well-being and to highlight the potential channels that may exacerbate or attenuate the consequences of the pandemic.

3 Data and Methodology

Institutional background: A few distinct features define the public school system in Pakistan. In public schools, the academic year runs from April to March, and final exams therefore occur in

[3](U.S. Embassy- Islamabad. Reporting. January 14, 2020, U.S. Department of State.Trafficking in Persons Report- 2019: Pakistan.Washington, DC, June 1, 2019. https://www.state.gov/reports/2019-trafficking-in-persons-report/ and Nazish, Kiran. Pakistan's shame: the open secret of child sex abuse in the workplace. The Guardian, June 15, 2018. https://www.theguardian.com/global-development/2018/jun/15/pakistanshame-open-secret-child-sex-abuse-workplace-kasur

March. The majority of these schools are segregated by gender, and most children pursue primary and middle-school education at the same public school. All these features guided our access to parent-child pairs in the sampled schools, as described in this paper.

Original sample selection: Our original study was conducted between April and June 2018. To construct the sample for the original study, we acquired parents' contact information from school records. The children (median age of 12 years) had recently completed their final year of primary school education (grade 5), and conditional on passing a central exam, they transitioned to middle school for the next academic year. To facilitate data collection, we restricted the sample to schools for which it was possible for students to transition within the same school, which is common in Pakistan. We concentrated on rural and peri-rural localities of the Kasur district in Punjab. We chose the district of Kasur in Punjab because the average level of various development indicators (such as school dropout rate, monthly income of those employed, population involved in agriculture, youth labor market participation and crime rate) in Punjab are closest to those observed in Kasur, according to the district-wise data collected from the Alif Ailaan campaign (2013-2018) for education in Pakistan. This process left a pool of 45 schools from which we randomly selected the sample. We selected 32 schools, where the probability of a school being chosen for our sample increased with the number of students in grade 5. The distribution of these schools by grade and gender is provided in Table A1.

We then took all students at these 32 schools enrolled in grade 5 (in February 2018) who were due to transition to middle school (grade 6) at the start of April 2018 after taking the central exam. In April, with the school's cooperation, we accessed the school records for the previous academic year and the current academic year and collected the addresses of the parents of students enrolled in one of the sampled schools during the previous academic year (i.e., prior to the transition). We then collected information using parent-child pair surveys during the period from April to June 2018. The total number of observations collected was 1,506, and 90 of these observations were parental variables collected from nonparental guardians. We excluded such children and based our study on the sample of 1,416 parent-child observations.

Follow-ups: The sample of parents and their contact information acquired during our original survey provided us with the basis to recontact parents for two additional follow-up surveys during the two nationwide lockdowns in 2020. In Pakistan, schools were first closed nationwide on March 14, 2020. The first nationally instituted lockdown of schools and other activities to combat COVID-19 lasted until September 15, 2020, when schools reopened for the 2020-2021 academic year. Between November 25, 2020, and December 25, 2020, schools were closed nationwide a second time to control the spread of the virus. Parents were recontacted for a first followup in

August-September 2020 (wave 1) and for a second follow-up in November-December 2020 (wave 2) during the school closures. For wave 1, we were able to reach 980 parents from the baseline sample, and of these 980 parents contacted in the first follow-up, we were able to recontact 975 parents for wave 2. Attrition was approximately 30% across the baseline and the two follow-up waves.

The main reasons for attrition were that the contact numbers collected at baseline were not working or phone numbers were transferred to another person by phone providers. In the past few years, the major phone companies in Pakistan have been mandated to enhance their records about the owners of phone numbers (such as their national ID cards), and under this mandate, many phone numbers where the registration was not accompanied by proper paperwork led to cancellation of numbers and/or transfer of the same phone number to another recipient. To ensure that the follow-up waves did not introduce any systematic bias, such as only male children/literate/richer parents responded to the follow-up, we present in Table A2 that for important socioeconomic variables, the subsamples we were able to contact for the follow-ups were remarkably similar (using the original data), as the p-values for the differences in these variables across samples are always insignificant. This allows us to rule out the possibility of systematic bias in the follow-up waves.

At both follow-ups in 2020, parents were contacted by phone because restriction due to the COVID-19 pandemic prohibited face-to-face survey collection. Moreover, because the acquisition of information directly from children through phone calls is forbidden in Pakistan, phone interviews were conducted with parents at both time points to adhere to the institutional protocols of the institution that conducted this survey in Pakistan and the COVID-19-related restrictions (standard operating procedures (SOPs)) in place with regard to human subject research.[4] The variables collected are discussed in the outcome and independent variable section.

Outcome variables: To estimate the impact of the COVID-19 pandemic on children's health and well-being, additional information was collected from parents. A similar approach of using parent-reported perception of their children's health has been used in many surveys in prior research (see, e.g., Currie and Stabile, 2006). The included questions pertained to aspects of children's physical health ("In general, how would you rate your child's physical health [before/during the current lockdown]?"), mental health ("In general, how would you rate your child's mental health and ability to think [before/during the current lockdown]?"), sleep quality ("In general, how would you rate your child's sleep quality [before/during the current lockdown]?"), eating habits ("In general, how would you rate your child's eating habits [before/during the cur-

[4]At all three measurement points, participants were compensated for their participation. All procedures and materials were approved by the Institutional Review Board (the IRB protocol numbers are HRPP-015-2018 HRPP-2020-98) of the first author's institution.

rent lockdown]?"), social health ("In general, how would you rate your child's satisfaction with his/her social activities and relationships [before/during the current lockdown]?") and life quality ("In general, how would you rate your child's quality of life [before/during the current lockdown]?"). The responses were collected on a Likert scale: 1. Poor, 2. Fair, 3. Good, 4. Very Good, 5. Excellent.

Such child's health-related questions are often asked to parents by health officials, are psychometrically validated and are commonly used by the world health survey conducted by the World Health Organization (WHO), the National Health Interview Survey (NHIS) conducted by the Centers for Disease Control and Prevention (CDC) (Blewett et al., 2020; Drew, 2021), and surveys reported in the literature (see, e.g., Belanger and Suchodoletz, 2021).

Independent variables: The main independent variable of interest is the time variable, with three periods. The first period corresponds to time before the pandemic, and the second and third periods correspond to lockdown one and lockdown two, respectively.

We are also interested in time-varying factors, which we utilize in two ways. The first is to help us understand the economic and noneconomic mechanisms highlighted in Section 2 in driving the impact of lockdowns on children's health and well-being. For this, we make use of the binary variables of economic and noneconomic factors since binary variables facilitate interpretation across different factors that are measured on a Yes/No scale and because continuous measures have different units. The second use of these factors is to include additional controls, where we make use of the continuous variables when available. Below, we describe the construction of each of these factors.

The first factor we consider is the economic state of the household. The family structure in developing economies differs from that in developed economies. Within developing countries, there is substantial variation in family size. While some families comprise just the nuclear family, others, especially in rural settings, include multiple generations. Often, the head of the family (usually a male member) is the breadwinner. For these reasons, instead of using income, we construct a continuous variable of income per capita for each period, which is based on two questions asked to parents: (1) "What is your household's average monthly income (in local currency)?", and (2) "What is the family size of this household?". Some data for income are not reported. As a result, following Fruehwirth et al. (2019), we address this issue by replacing nonreported or zero income with zero and include an additional binary variable for missing income, which takes a value of 0 if income is zero. We include this dummy in our specification to avoid any systematic attrition of the data that could impact the results. For the binary variable, we restrict ourselves to the sample where we have reported income and code it as follows. If the household's income per capita is more than its own mean income prior to and during the lockdown periods, we code

the variable as 1; otherwise, it takes a value of 0.

As the second economic factor, which captures extreme poverty of the household, we consider whether the child engages in economic activity or not prior to and during the lockdowns. No consensus exists on whether it is better to ask parents or the child about the child's work activity, and while Dillon et al. (2012) find little difference between work reported by children and that reported by their guardians, both Dammert and Galdo (2013) and Janzan (2018) find the reports to be inconsistent in a significant number of cases. Since we could not ask the child directly in the follow-up phone survey (due to restrictions by the host country), we asked the child's guardian whether the child engaged in any economic activity or not (extensive margin) prior to the lockdowns and during the lockdowns, as we believe the guardians are well suited to answer this type of question. Specifically, we asked parents "Does your child do any work for a wage, salary, commission or any payment in kind (excluding domestic household work) [before/during the current lockdown]?". We code the response to this question as 1 if the child engages in any economic activity; otherwise, child labor is coded as 0.

In terms of noneconomic factors, we include the general, psychological state of parents, which is shown to play a pivotal role in children's outcomes. We measure this factor using 11 questions from Goldberg (1988), which are also validated by Goldberg et al. (1997). The questions include "During this period [before/during the current lockdown] have you been loosing confidence (feeling unhappy, feel unable to face up difficulties, feel you are playing a useful part in life, feel worthless, feel depressed, feel unable to overcome difficulties, feel strained, unable to enjoy day to day, having difficulty sleeping)?". The responses are on a Likert scale: 1. Never, 2. Rarely, 3. Sometimes, 4. Often, 5. All the time.

Note that our design minimizes the common method variance bias (CMV). Podsakoff and Organ (1986) defines CMV as when the estimates of the relationships between two or more constructs are biased because they are measured with the same method. However, in our setting, when we ask parents about their own psychological state and their child's health and well-being, we made an explicit effort to use a different type of scale (frequency-based scale for parents and quality-based scale for children) and reversed the order of choices such that choices in ascending order are associated with worse psychological state for the parent questions (Never to Often) but ascending order for the child questions (Poor to Excellent). This approach eliminates common scale properties and balances the positive and negative items. Such methods have been used by numerous papers to address CMV (Jordan and Troth, 2020).

We construct a continuous measure of parent's general health by aggregating the scale for all the questions and dividing it by the number of questions responded to. To assess how closely related these sets of questions are as a group, we calculate Cronbach's alphas, which are 0.82, 0.95 and 0.85 (for periods 1, 2 and 3, respectively). These alphas indicate a high degree of inter-

nal consistency. We also construct a dummy variable, where we code a parent having a good psychological state as 1 if the continuous measure is less than or equal to 2, which, on average, corresponds to never and rarely responses for individual questions; otherwise, the parent's good psychological state variable is coded as 0.

The second noneconomic variable we construct is based on the question "During this period [before/during the current lockdown] were you involved in supporting your child with their educational activities?". This question allows us to capture the support provided by parents to their children for education and school related activities. We construct a dummy variable that takes a value of 1 if the parents respond yes and 0 otherwise.

Challenges: We overcome several challenges in designing our surveys. First, during the pandemic, as commonly experienced by many researchers, access to subjects was limited or permitted only via telephone. Primarily, these restrictions were put in place to ensure compliance with the standard of operations during the pandemic to combat the spread of the virus. Investigators, therefore, have utilized pre-existing samples of subjects from studies conducted prior to the pandemic. This pathway provides baseline information (before the pandemic) that is otherwise not available. Despite this benefit, two drawbacks are salient: the mode of the survey differs due to COVID-19-related standards of operation in the host country (for example, in-person mode for the baseline and telephone surveys for the pandemic period); and there is also the possibility of attrition in the sample, which can introduce systematic biases in the analysis.

An alternative to using the baseline data from a prior study is to ask individuals to recall information prior to the pandemic and during the pandemic. However, with this approach, recall bias is often cited as a major issue. However, there is evidence in the literature that shorter recall periods for micro data reduce this bias (Kjellsson et al., 2014), and a salient period of reference is an important factor in whether the retrospective accounts are subject to recall decay (Loftus and Marburger, 1983; Smith and Thomas, 2003; Judge and Schechter, 2009). For example, Loftus and Marburger (1983) studies how the accuracy of information acquired using retrospective accounts in surveys improves when the survey uses a salient landmark event, such as the eruption of a volcano. In another context, Smith and Thomas (2003) find that there is less likelihood of recall delay for migrant respondents when the migration event is of greater salience to the respondent. Finally, Judge and Schechter (2009) show that in an agriculture survey from Paraguay, the information collected for crops that represent a larger share of household income is less prone to recall bias. Beegle et al. (2012) further confirm the reliability of recall in agricultural data for three African countries.

To categorize whether an event is salient or not, Bradburn et al. (2004) identify three factors: "(1) the unusualness of the event, (2) the economic and social cost or benefits of the event, and

(3) the continuing consequences of the event". Relating this concept of salience to the pandemic, it is natural to assume that the pandemic and the associated lockdowns are unusual events with persistent consequences for households and, therefore, make the time reference of the lockdowns salient. Thus, in our case, we ask the parents to recall information for an average month prior to the lockdown and for the periods during the lockdown. We expect recall delay to be small due to the drastic shifts in day-to-day life, school closure, economic downturn, and health concerns during the lockdowns. The credibility of our approach, therefore, rests on two assumptions: (1) the significance of the event such that subjects are well-informed about the time frame in question, an assumption which is justifiable in our case given the significance of the pandemic and the associated lockdowns around the world; (2) there is minimum systematic bias (such as recall bias) in the reporting of the data, an assumption that is commonly made when using survey data. Under these assumptions, while asking subjects about the health and well-being of their children in the current moment is free from recall bias, gathering the same information for an average month before the COVID-19 lockdown is less likely to be prone to recall bias than asking the same question where time reference is based on some insignificant event. Moreover, in combination, the recall period being less than 7 months and the significance of the event in question both help in minimizing the bias.

Second, to causally identify effects, the ideal methodology would be to estimate a difference-in-differences specification, but this method relies on variation of some children being exposed to the pandemic/lockdown episode an others not being exposed. Indeed, a macroeconomic and global shock, such as the pandemic and nationwide lockdowns, affects every individual, regardless of which geographical location they reside in. Therefore, it is not possible to clearly assign control and treatment status to the subjects by exploiting cross-sectional variation in timing of lockdowns across some spatial dimension. Alternatively, one may be able to leverage a time-series variation, such as a survey conducted at differing times or variation in the schedule of school shutdowns. However, given that in developing countries infection rates increased dramatically, due to the limited capacity of health care systems, stringent nationwide lockdowns were implemented in the early months of the pandemic. These concerns mean it is not possible to exploit time-series and cross-sectional variation in the lockdowns. However, these factors certainly justify our assumption that lockdowns are significant events for recall purposes.

In light of these two challenges and the associated benefits and drawbacks of alternative choices, we use a hybrid of survey design and associated methodology. While maximizing the benefits and minimizing the drawbacks, we utilize the sample of subjects from an existing study, confirm that attrition is not systematic, and then conduct the survey asking subjects to recall information in the month before the lockdown and provide information during the current period. This approach allows us to utilize the contact information from an existing study, overcome

concerns relating to the potential systematic attrition and utilize the survey information, which is uniform in terms of the survey mode (telephone only) for the construction of our outcome variables.

Statistical model: Our primary empirical specification is an individual fixed effect estimation, as follows,

$$y_{it} = \alpha_i + \beta_t Lockdown_t + \mu_{it}, \tag{1}$$

where $i = 1 \ldots N$ represents the identity of the child and $t = 0, 1, 2$ denotes the period relative to the lockdowns. y denotes the outcome variables, which include a child's physical health, mental health, sleep quality, eating habits, satisfaction with social relationships and quality of life. $Lockdown_0$ represents the period prior to a lockdown and is the omitted period, $Lockdown_1$ denotes lockdown 1 and $Lockdown_2$ denotes lockdown 2. For each of these periods, in Appendix Figure A1.1-A1.6, we present a summary of our outcome variables. α_i are individual specific intercepts and contain $Z_{i,1}$, which are observable and unobservable individual specific characteristics in $Lockdown_0$ that differ between individuals but are constant over time, such that $\alpha_i = \alpha_0 + \gamma Z_i$. Finally, μ_{it} denotes the error term.

The coefficients of primary interest are β_1 and β_2, which correspond to the two lockdown periods and use within-subject variation across periods. These coefficients can be interpreted as the impact of the lockdown period relative to the no-lockdown period before the COVID-19 pandemic. In the robustness exercise, we include additional variables, such as income per capita, missing income, child's engagement in labor, psychological state of the parent and whether the parent provides support for educational activity of their child.

In addition to estimating the average impacts of lockdown periods on children's health and well-being, we explore whether economic and noneconomic mechanisms, denoted by F (and which instead of being additional controls are now interaction variables and include economic state of the household, child's engagement in economic activity, psychological state of the parent and support provided by the parent for educational activities), can shed light on whether these factors exacerbate or attenuate the impact of lockdowns on children's outcomes. To do so, we estimate a regression model that includes interactions between the period indicator and the factor F:

$$y_{it} = \alpha_i + \beta_t Lockdown_t + \kappa_t F_{it} + \delta_t Lockdown_t \times F_{it} + \mu_{it}. \tag{2}$$

We first study each factor individually; then, in a separate specification, we jointly estimate an interaction model in which we include all factors and their interactions with periods simulta-

neously.

4 Results

In this section, we start by presenting the effect of lockdowns on children's health and well-being, as perceived by their parents.

4.1 Main Results

Using specification 1, we estimate the effect of the lockdown periods relative to prelockdown on parent's perceived health and well-being outcomes for their children and present the results in Panel A of Table 1. The mean level of health outcomes prior to the lockdowns are provided in the table as the constant term. From the coefficients corresponding to each of the lockdown periods, we can see that parents perceived their children to have worse physical health, mental health, sleep quality, eating habits, social satisfaction and life quality during the lockdown periods relative to prior to the lockdown. During the first lockdown, parents report that the mental health, social satisfaction and life quality of their child is only fair relative to good prior to the lockdown, and physical health during the second lockdown is only good relative to very good prior to the lockdowns. The smaller coefficients for the second lockdown compared to the first lockdown suggest that the effect is less negative for the second lockdown.

Table 1: The impact of lockdowns on children's health and well-being

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	**Physical Health**	**Mental Health**	**Sleep Quality**	**Eating Habits**	**Social Satisfaction**	**Life Quality**
1st Lockdown	-0.074***	-0.63***	-0.17***	-0.15***	-0.67***	-0.60***
	(0.025)	(0.032)	(0.021)	(0.018)	(0.030)	(0.029)
2nd Lockdown	-0.63***	-0.44***	-0.19***	-0.15***	-0.39***	-0.37***
	(0.025)	(0.032)	(0.021)	(0.018)	(0.030)	(0.029)
constant	4.03***	3.62***	4.09***	4.09***	3.56***	3.55***
	(0.017)	(0.022)	(0.015)	(0.013)	(0.021)	(0.021)
Panel B	**Hypothesis Testing**					
Lockdown 2 vs. Lockdown 1	-0.554***	0.187***	-0.022	0.000	0.281***	0.230***
Test p-value	[0.000]	[0.000]	[0.314]	[1.000]	[0.000]	[0.000]
Total Obs	2925	2925	2925	2925	2925	2925
Total Individuals	975	975	975	975	975	975

Note: Panel A presents estimates from specification 1. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null hypothesis that the coefficients of two subsamples (as specified in Panel B) are equal. All numeric values are displayed up to 3 decimal places. Stars indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

To ascertain whether, statistically speaking, the estimated effects become progressively worse across the two lockdowns, we test if the coefficient for the second lockdown is significantly more negative than the coefficient for the first lockdown and present the p-values in Panel B. We find that apart from physical health, other well-being measures do not show a progressively negative impact of lockdowns. Instead some measures improve relative to the first lockdown. This dynamic effect across lockdown periods could be explained by the adaptation strategies or adjusted expectations about the lockdown after the first lockdown. While the impact is permanently negative during the lockdown periods, the effects are weaker in the latter lockdown than during the first one.

In Appendix Table A3, we show that when we include additional controls, the results described above remain unchanged. In the Appendix, we also study whether the effects we estimated above differ by gender by interacting the gender dummy, as in specification 2.

Note that since the specification includes individual fixed effects, the direct effect of gender on health outcomes is absorbed. The results are presented in Appendix Table A4. We find that while both male and female children are negatively effected in lockdown 1 and lockdown 2, the interaction term indicates that male children experience a larger negative effect, compared to female children, in lockdown 1 for mental health, social satisfaction and quality of life. In the context of Pakistan, this is intuitive because it is usually male children who have some form of social interactions with other children outside the home. However, during the lockdowns, such interactions became limited, which affected the social lives of male children. Female children, on the other hand, usually spend more time indoors and were not as strongly affected by stringent rules limiting interactions with neighbors or other children. Additionally, the effects during lockdown 2 are nonsignificant, indicating that the differences vanish from lockdown 1 to lockdown 2. These results are consistent with our hypothesis that there is some adaptation mechanism at play that weakens the negative effect of the first lockdown, even though the effects continue to be negative in most cases.

4.2 Potential Mechanisms

In this section, we explore whether the estimated effects for lockdown periods described in Section 4.1 can be explained by the economic and noneconomic mechanisms described in Section 2. For the economic mechanisms, we consider the dummy for above/below mean income per capita in one specification and the child's status in terms of their engagement in the labor market in another specification. Both variables are relevant features for developing economies, and the latter factor is specifically in stark contrast to the environment faced by children in developed economies and represents extreme poverty. For noneconomic mechanisms, we consider

the dummy representing parent's good and bad psychological state prior to and during the lockdowns and the dummy for the presence and absence of support of parents for their children's school-related work. To easily see the impacts, for each analysis, we study the within-period effect across two subsamples and we study the effect across periods for each subsample.

4.2.1 Economic Mechanism

Economic State: We estimate specification 2 and present the results in Table 2.[5] In the first subsample, our first group of interest is children belonging to households with good economic state, and the comparison group is children whose households experience a poor economic state. We present the differential effects and the associated p-values for these two groups in each period (prior to the lockdown, lockdown 1 and lockdown 2).

The results show that prelockdown, a good economic state is associated with better mental health, social satisfaction and quality of life. However, during the first lockdown, the economic state of the household does not appear to be relevant to the well-being of children, and during the second lockdown, a better economic state is associated with better physical health, sleep quality and eating habits of children.

For the second analysis, we focus on children whose households have a poor economic state (a good economic state) and look at the impact on health outcomes during versus prior to lockdowns. The results show that children from both types of households suffer adversely in terms of their well-being during the pandemic. During the second lockdown, the negative effect for children with good versus poor economic state is significantly attenuated in terms of physical health and eating habits. In Appendix Table A5, we control for all variables, such as income per capita, missing income, parents psychological state and parent's support, and show that similar results hold. Overall, these results suggest that there is no strong systematic evidence across lockdowns that the economic state of the household is the primary driver of the negative effects of the lockdown.

Child Labor: In 2019, the province of Punjab passed the Punjab Domestic Workers Act of 2019, which prohibits children aged 15 years and under from working in any domestic service capacity. Despite this act, approximately 12.4% of the children aged 5-14 years in the province of Punjab engage in some form of labor. In our baseline data (in 2018 when the median child's age was 12), approximately 16% of children were involved in labor. Just prior to and during the first lockdown, approximately 25% of the children engaged in economic activities, and the percentage increased to 40% during the second lockdown. As a result, from March 2020 to Dec 2020, there is an approximately 60% increase in the number of children who engage in economic activities. This

[5]Note that we exclude individuals for whom income is not reported prior to and during the lockdowns.

Table 2: Economics state

Panel A	(1) Physical Health	(2) Mental Health	(3) Sleep Quality	(4) Eating Habits	(5) Social Satisfaction	(6) Life Quality
Lockdown 1	-0.050	-0.48***	-0.18***	-0.21***	-0.45***	-0.43***
	(0.055)	(0.072)	(0.050)	(0.043)	(0.067)	(0.066)
Lockdown 2	-0.77***	-0.26***	-0.27***	-0.31***	-0.19**	-0.23***
	(0.062)	(0.082)	(0.057)	(0.049)	(0.076)	(0.075)
Good Economic State	0.018	0.22***	-0.010	-0.091**	0.28***	0.22***
	(0.059)	(0.077)	(0.054)	(0.046)	(0.072)	(0.071)
Good Economic State X Lockdown 1	-0.081	-0.14	-0.0044	0.081	-0.24	-0.14
	(0.10)	(0.14)	(0.096)	(0.081)	(0.13)	(0.13)
Good Economic State X Lockdown 2	0.36***	-0.24	0.14	0.26***	-0.25**	-0.19
	(0.096)	(0.13)	(0.088)	(0.075)	(0.12)	(0.12)
Constant	4.03***	3.51***	4.11***	4.16***	3.41***	3.43***
	(0.043)	(0.057)	(0.040)	(0.034)	(0.053)	(0.053)
Panel B			**Hypothesis Testing**			
Prelockdown Good Economic State vs. Bad	0.018	0.221***	-0.010	-0.091	0.284***	0.220***
p-value	[0.759]	[0.004]	[0.847]	[0.048]	[0.000]	[0.002]
Lockdown 1 Good Economic State vs. Bad	-0.063	0.080	-0.015	-0.010	0.047	0.075
p-value	[0.316]	[0.333]	[0.797]	[0.835]	[0.538]	[0.328]
Lockdown 2 Good Economic State vs. Bad	0.375***	-0.022	0.125***	0.169***	0.038	0.030
p-value	[0.000]	[0.757]	[0.012]	[0.000]	[0.559]	[0.641]
Bad Economic State Lockdown 1 vs. Prelockdown	-0.050	-0.478***	-0.184***	-0.211***	-0.447***	-0.426***
p-value	[0.362]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Good Economic State Lockdown 1 vs. Prelockdown	-0.132**	-0.619***	-0.188***	-0.130**	-0.683***	-0.570***
p-value	[0.046]	[0.000]	[0.002]	[0.011]	[0.000]	[0.000]
Bad Economic State Lockdown 2 vs. Prelockdown	-0.768***	-0.256***	-0.268***	-0.311***	-0.194**	-0.225***
p-value	[0.000]	[0.002]	[0.000]	[0.000]	[0.011]	[0.003]
Good Economic State Lockdown 2 vs. Prelockdown	-0.411***	-0.498***	-0.132***	-0.051	-0.440***	-0.414***
p-value	[0.000]	[0.000]	[0.003]	[0.178]	[0.000]	[0.000]
Total Obs	2259	2259	2259	2259	2259	2259
Total Individuals	753	753	753	753	753	753

Note: Panel A presents estimates from specification 2. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null-hypothesis that the coefficients of two sub-samples (as specified in the first column of Panel B) are equal. All numeric values are displayed up to 3 decimal places. Stars indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

scenario indicates a desperate economic state of households, where children are forced into work for subsistence. In such a state, the health and well-being of children who work are more likely to be impacted because of the direct effects of child labor on children's health and well-being. We, therefore, assess whether the impact of the lockdowns is worse for children who engage in the labor market.

We estimate specification 2 with the status of the child's labor as the interaction variable and present the results in Table 3. In the first subsample, our first group of interest is children who work (child labor), and the comparison group is children who do not work. We present the differential effects and the associated p-values for these two groups in each period (prior to the

Table 3: Child Labor

Panel A	(1) **Physical Health**	(2) **Mental Health**	(3) **Sleep Quality**	(4) **Eating Habits**	(5) **Social Satisfaction**	(6) **Life Quality**
Lockdown 1	-0.10***	-0.42***	-0.14***	-0.18***	-0.48***	-0.42***
	(0.023)	(0.036)	(0.025)	(0.022)	(0.034)	(0.034)
Lockdown 2	-0.17***	-0.31***	-0.18***	-0.11***	-0.24***	-0.23***
	(0.026)	(0.040)	(0.028)	(0.024)	(0.037)	(0.037)
Child Labor	-0.063	-0.011	-0.0081	0.023	-0.049	0.0040
	(0.046)	(0.072)	(0.051)	(0.043)	(0.067)	(0.067)
Child Labor X Lockdown 1	0.14**	-0.85***	-0.11	0.092	-0.75***	-0.72***
	(0.062)	(0.096)	(0.068)	(0.058)	(0.090)	(0.090)
Child Labor X Lockdown 2	-1.07***	-0.33***	-0.034	-0.11**	-0.34***	-0.34***
	(0.059)	(0.092)	(0.064)	(0.055)	(0.086)	(0.085)
Constant	4.04***	3.63***	4.09***	4.09***	3.57***	3.55***
	(0.016)	(0.024)	(0.017)	(0.015)	(0.023)	(0.023)
Panel B	**Hypothesis Testing**					
Prelockdown Child Labor vs. Not	-0.063	-0.011	-0.008	0.023	-0.049	0.004
p-value	[0.177]	[0.874]	[0.872]	[0.600]	[0.465]	[0.953]
Lockdown 1 Child Labor vs. Not	0.078*	-0.862***	-0.122***	0.115***	-0.796***	-0.718***
p-value	[0.056]	[0.000]	[0.006]	[0.003]	[0.000]	[0.000]
Lockdown 2 Child Labor vs. Not	-1.135***	-0.340***	-0.042	-0.088**	-0.386***	-0.340***
p-value	[0.000]	[0.000]	[0.282]	[0.010]	[0.000]	[0.000]
No Child Labor Lockdown 1 vs. Prelockdown	-0.103***	-0.416***	-0.142***	-0.177***	-0.475***	-0.422***
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Child Labor Lockdown 1 vs. Prelockdown	0.037	-1.266***	-0.256***	-0.085*	-1.222***	-1.144***
p-value	[0.484]	[0.000]	[0.000]	[0.091]	[0.000]	[0.000]
No Child Labor Lockdown 2 vs. Prelockdown	-0.174***	-0.306***	-0.177***	-0.112***	-0.236***	-0.233***
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Child Labor Lockdown 2 vs. Prelockdown	-1.247***	-0.635***	-0.211***	-0.223***	-0.573***	-0.577***
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Total Obs	2925	2925	2925	2925	2925	2925
Total Individuals	975	975	975	975	975	975

Note: Panel A presents estimates from specification 2. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null hypothesis that the coefficients of two subsamples (as specified in Panel B) are equal. All numeric values are displayed up to 3 decimal places. Asterisks indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

lockdown, lockdown 1 and lockdown 2). We see that while prior to the lockdown the health outcomes for the two groups are not significantly different from each other, during lockdown 1 and lockdown 2, children who work have lower well-being compared to children who do not work. For the second analysis, we focus on children who do not work (and children who work), and look at the impact on health outcomes during versus prior to lockdowns. We find, regardless of whether children work or not, that the effect of a lockdown is negative, but the effect is worse for children who work in each period (as indicated by the significant interaction term). This

finding holds when we focus on lockdown 1 or lockdown 2. We also observe that these effects appear to be stronger during lockdown 1 than lockdown 2, indicating adaptation and learning. In Appendix Table A6, we control for all variables, such as income per capita, missing income, parent's psychological state and parent's support, and show that similar results hold.

4.2.2 Noneconomic Mechanism

Psychological state of parents: As mentioned in Section 2, a parent's own psychological state is a potential mechanism driving children's health and well-being during lockdowns. We use the psychological index as an interaction factor and estimate specification 2 and present results in Table 4.

Our results indicate that while parent's good or bad psychological state has no significant impact on children's well-being or health prior to the pandemic, during the lockdowns, the psychological state is important in terms of a few dimensions of children's well-being. During the first lockdown, parents with a good psychological state have children with better mental health, social satisfaction and life quality, but during the second lockdown, these effects are evident only for physical health and somewhat for eating habits.

To ascertain whether the effects of the lockdown are mediated through parent's psychological state, we find that regardless of the state, lockdowns have a negative effect on children's well-being. The effects are significantly attenuated for children's mental health and social satisfaction if the parent has a good psychological state during the first lockdown, and the same conclusion holds for physical health during the second lockdown.[6] In Appendix Table A7, we control for all variables, such as income per capita, missing income, child labor status and parent's support, and show that similar results hold. Overall, these results suggest that the psychological state of parents is important; however, the evidence is not systematic across lockdowns or evident for most of the dimensions of well-being we study.

Parental Support: The role of parents in supporting their children's education prior to the lockdown and, more importantly, during the lockdown may be crucial for children's well-being. However, parents own worries during the pandemic may crowd out the time parents can provide to adequately meet their child's needs, especially for education. We now analyze whether this factor drives the relationship between lockdowns and children's health and well-being presented in our main results.

We estimate specification 2 with the parental support for educational activities as the interaction variable and present the results in Table 6. The results indicate that parental support versus

[6]We observe a somewhat negative effect on quality of life in the second lockdown relative to prelockdown for parents with a good psychological state versus a bad psychological state, which we cannot rationalize.

Table 4: Psychological state

Panel A	(1) Physical Health	(2) Mental Health	(3) Sleep Quality	(4) Eating Habits	(5) Social Satisfaction	(6) Life Quality
Lockdown 1	-0.034	-0.83***	-0.28**	-0.16	-0.83***	-0.56***
	(0.12)	(0.16)	(0.11)	(0.097)	(0.15)	(0.15)
Lockdown 2	-1.09***	-0.31	-0.26**	-0.22**	-0.29	-0.033
	(0.13)	(0.17)	(0.12)	(0.099)	(0.16)	(0.15)
Psychological State	-0.11	0.099	-0.062	-0.017	0.092	0.33**
	(0.12)	(0.16)	(0.11)	(0.097)	(0.15)	(0.15)
Psychological State X Lockdown 1	-0.16	0.44***	0.16	0.011	0.37**	0.19
	(0.13)	(0.17)	(0.12)	(0.10)	(0.16)	(0.16)
Psychological State X Lockdown 2	0.61***	-0.15	0.068	0.093	-0.097	-0.36**
	(0.13)	(0.17)	(0.12)	(0.10)	(0.16)	(0.16)
Constant	4.13***	3.53***	4.15***	4.11***	3.47***	3.23***
	(0.12)	(0.16)	(0.11)	(0.095)	(0.15)	(0.15)
Panel B			**Hypothesis Testing**			
Prelockdown Good Psychological State vs. Bad	-0.110	0.099	-0.062	-0.017	0.092	0.331
p-value	[0.375]	[0.545]	[0.585]	[0.864]	[0.549]	0.029
Lockdown 1 Good Psychological State vs. Bad	-0.271***	0.543***	0.097**	-0.005	0.461***	0.525***
p-value	[0.000]	[0.000]	[0.010]	[0.865]	[0.000]	[0.000]
Lockdown 2 Good Psychological State vs. Bad	0.504***	-0.047	0.006	0.077**	-0.005	-0.025
p-value	[0.000]	[0.423]	[0.877]	[0.028]	[0.934]	[0.642]
Bad Psychological State Lockdown 1 vs. Prelockdown	-0.034	-0.828***	-0.284**	-0.165*	-0.826***	-0.565***
p-value	[0.783]	[0.000]	[0.012]	[0.089]	[0.000]	[0.000]
Good Psychological State Lockdown 1 vs. Prelockdown	-0.195***	-0.383***	-0.125***	-0.154***	-0.458***	-0.370***
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Bad Psychological State Lockdown 2 vs. Prelockdown	-1.085***	-0.314*	-0.257**	-0.221**	-0.293*	-0.033
p-value	[0.000]	[0.060]	[0.026]	[0.026]	[0.063]	[0.830]
Good Psychological State Lockdown 2 vs. Prelockdown	-0.471***	-0.460***	-0.189***	-0.128***	-0.390***	-0.389***
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Total Obs	2925	2925	2925	2925	2925	2925
Total Individuals	975	975	975	975	975	975

Note: Panel A presents estimates from specification 2. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null hypothesis that the coefficients of two subsamples (as specified in the first column of Panel B) are equal. All numeric values are displayed up to 3 decimal places. Asterisks indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

absence of support prior to the lockdown does not significantly affect the well-being of children; however, the presence of support is associated with better mental health, social satisfaction and quality of life during the first lockdown and with better physical health during the second lockdown.

To ascertain how much of the negative effect of the lockdown is driven by parental support, we find that regardless of the support, all children experience negative effects of lockdowns. However, parental support is not a potential mechanism as the interaction effects are not significant. In Appendix Table A8, we control for all variables, such as income per capita, missing income,

Table 6: Parental support

Panel A	(1) **Physical Health**	(2) **Mental Health**	(3) **Sleep Quality**	(4) **Eating Habits**	(5) **Social Satisfaction**	(6) **Life Quality**
Lockdown 1	-0.027	-0.78***	-0.18***	-0.14***	-0.77***	-0.68***
	(0.029)	(0.038)	(0.026)	(0.022)	(0.036)	(0.035)
Lockdown 2	-0.74***	-0.47***	-0.16***	-0.14***	-0.40***	-0.37***
	(0.028)	(0.037)	(0.025)	(0.022)	(0.035)	(0.035)
Support	0.18	0.038	0.13	0.067	0.24	0.11
	(0.16)	(0.21)	(0.15)	(0.13)	(0.20)	(0.20)
Support X Lockdown 1	-0.32	0.41	-0.11	-0.11	0.10	0.14
	(0.17)	(0.22)	(0.15)	(0.13)	(0.21)	(0.21)
Support X Lockdown 2	0.21	0.044	-0.23	-0.11	-0.18	-0.11
	(0.17)	(0.22)	(0.15)	(0.13)	(0.21)	(0.21)
Constant	4.02***	3.62***	4.08***	4.09***	3.56***	3.55***
	(0.017)	(0.022)	(0.015)	(0.013)	(0.021)	(0.021)
Panel B	**Hypothesis Testing**					
Prelockdown Support vs. No Support	0.182	0.038	0.133	0.067	0.236	0.115
p-value	[0.264]	[0.858]	[0.362]	[0.595]	[0.240]	[0.564]
Lockdown 1 Support vs. No Support	-0.135***	0.450***	0.026	-0.043	0.339***	0.258***
p-value	[0.006]	[0.000]	[0.550]	[0.259]	[0.000]	[0.000]
Lockdown 2 Support vs. No Support	0.389***	0.082	-0.102**	-0.041	0.054	0.009
p-value	[0.000]	[0.211]	[0.022]	[0.286]	[0.384]	[0.889]
No Support Lockdown 1 vs. Prelockdown	-0.027	-0.775***	-0.178***	-0.137***	-0.773***	-0.684***
p-value	[0.352]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Support Lockdown 1 vs. Prelockdown	-0.344**	-0.364*	-0.284*	-0.246*	-0.670***	-0.541***
p-value	[0.037]	[0.093]	[0.054]	[0.053]	[0.001]	[0.007]
No Support Lockdown 2 vs. Prelockdown	-0.743***	-0.467***	-0.160***	-0.138***	-0.398***	-0.373***
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Support Lockdown 2 vs. Prelockdown	-0.535***	-0.424*	-0.395***	-0.246*	-0.581***	-0.479**
p-value	[0.001]	[0.051]	[0.008]	[0.054]	[0.005]	[0.018]
Total Obs	2925	2925	2925	2925	2925	2925
Total Individuals	975	975	975	975	975	975

Note: Panel A presents estimates from specification 2. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null hypothesis that the coefficients of two subsamples (as specified in the first column of Panel B) are equal. All numeric values are displayed up to 3 decimal places. Asterisks indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

child labor status and parent's psychological state, and show that similar results hold.

Discussion of mechanisms: Amongst all the mechanisms, we find that child labor plays a crucial role in driving the negative effect of *both* lockdowns relative to the prelockdown period. In particular, children engaged in economic activity are affected more negatively than are children who do not participate in the labor market. For all other mechanisms, while there are some significant interactions (such as economic state in lockdown 2 and psychological state in lock-

Table 7: All mechanisms

	(1) Physical Health	(2) Mental Health	(3) Sleep Quality	(4) Eating Habits	(5) Social Satisfaction	(6) Life Quality
Lockdown 1	-0.22	-0.64***	-0.31**	-0.30**	-0.66***	-0.43**
	(0.13)	(0.20)	(0.15)	(0.13)	(0.19)	(0.19)
Lockdown 2	-0.39***	0.034	-0.31	-0.25	-0.028	0.21
	(0.14)	(0.21)	(0.16)	(0.13)	(0.20)	(0.20)
Good Economic State	-0.036	0.11	-0.028	-0.091**	0.19***	0.14**
	(0.048)	(0.072)	(0.054)	(0.046)	(0.069)	(0.068)
Good Economic State X Lockdown 1	0.0082	-0.051	0.0091	0.086	-0.16	-0.083
	(0.085)	(0.13)	(0.096)	(0.081)	(0.12)	(0.12)
Good Economic State X Lockdown 2	0.15	-0.14	0.16	0.24***	-0.17	-0.13
	(0.079)	(0.12)	(0.089)	(0.075)	(0.11)	(0.11)
Child Labor	-0.045	0.055	-0.0031	0.048	-0.043	-0.020
	(0.051)	(0.075)	(0.057)	(0.048)	(0.072)	(0.071)
Child Labor X Lockdown 1	0.11	-0.82***	-0.13	0.074	-0.60***	-0.54***
	(0.071)	(0.11)	(0.080)	(0.068)	(0.10)	(0.10)
Child Labor X Lockdown 2	-1.03***	-0.60***	-0.087	-0.16**	-0.45***	-0.45***
	(0.071)	(0.11)	(0.079)	(0.067)	(0.100)	(0.099)
Psychological State	-0.12	0.0015	-0.11	-0.039	-0.10	0.16
	(0.13)	(0.19)	(0.14)	(0.12)	(0.18)	(0.18)
Psychological State X Lockdown 1	0.14	0.40**	0.20	0.12	0.39**	0.24
	(0.13)	(0.19)	(0.15)	(0.12)	(0.18)	(0.18)
Psychology X Lockdown 2	0.064	-0.19	0.12	0.036	-0.067	-0.34
	(0.13)	(0.20)	(0.15)	(0.13)	(0.19)	(0.19)
Support	0.024	0.24	0.21	0.12	0.10	0.051
	(0.17)	(0.25)	(0.19)	(0.16)	(0.24)	(0.23)
Support X Lockdown 1	-0.12	-0.047	-0.23	-0.17	0.016	0.0018
	(0.17)	(0.26)	(0.19)	(0.16)	(0.24)	(0.24)
Support X Lockdown 2	0.084	-0.26	-0.37	-0.22	-0.16	-0.11
	(0.17)	(0.26)	(0.19)	(0.16)	(0.24)	(0.24)
Constant	4.19***	3.58***	4.23***	4.19***	3.58***	3.33***
	(0.13)	(0.19)	(0.14)	(0.12)	(0.18)	(0.18)
Total Obs	2259	2259	2259	2259	2259	2259
Total Individuals	753	753	753	753	753	753

Note: This table presents estimates from specification 2. Standard errors are in brackets. All numeric values are displayed up to 3 decimal places. Asterisks indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

down 1), there is no systematic difference. This is especially the case when we simultaneously include all the mechanisms described above. We present this result in Table 7. For brevity, we do not include the additional panel for hypothesis testing and are interested in the coefficients associated with the interaction terms. The results show that extreme poverty that pushes children to participate in the labor market is the most important potential mechanism driving the negative effect of the lockdowns, especially during the second lockdown, where the estimates for lockdown 2 are also nonsignificant and absorbed by this potential mechanism.

5 Conclusion

This paper studies the impact of COVID-19-related lockdowns on the health and well-being of children of low-income households in rural areas of Pakistan. We find that the two periods of national lockdowns are associated with significantly lower measures of health and well-being, as reported by parents. We also find that for some measures, but not all, the association is less negative during the second lockdown than it is during the first, indicating some adaption to the circumstances.

Exploring possible mechanisms behind the negative impact of lockdowns, we find that the economic mechanism in the form of extreme poverty pushing children into active participation in the labor market is an important driver. In particular, we find the negative impact of lockdowns for children engaged in economic activity is associated with significantly worse outcomes along a number of dimensions of well-being during both lockdowns.

With the pandemic far from over, our results call for policy interventions during future lockdowns to help counteract the negative effects of lockdowns on children in developing countries. Our results also suggest that targeting limited resources at households in which children are likely to be engaged in economic activity may be particularly effective at mitigating the negative effects of lockdowns. These policies should be multidimensional, such that they are not limited to addressing the immediate negative economic effects of lockdowns while ignoring the other COVID-19 related risks relating to health and well-being of children, their access to vital family and care service, the increased likelihood of domestic violence, and child marriages and beyond.[7] Moreover, in future, as schools reopen, it will be these children who will need additional incentives (cash transfer program) and policy attention to successfully bring them back to school. To retain such children in the education system and to ensure their effective learning, simultaneous programs geared towards their psychological well-being can be beneficial (Josephson et al., 2021).

[7] The OECD. 2020. "OECD Policy Responses to Coronavirus (COVID-19): Combating COVID-19's effect on children." https://www.oecd.org/coronavirus/policy-responses/combatting-covid-19-s-effect-on-children-2e1f3b2f/.

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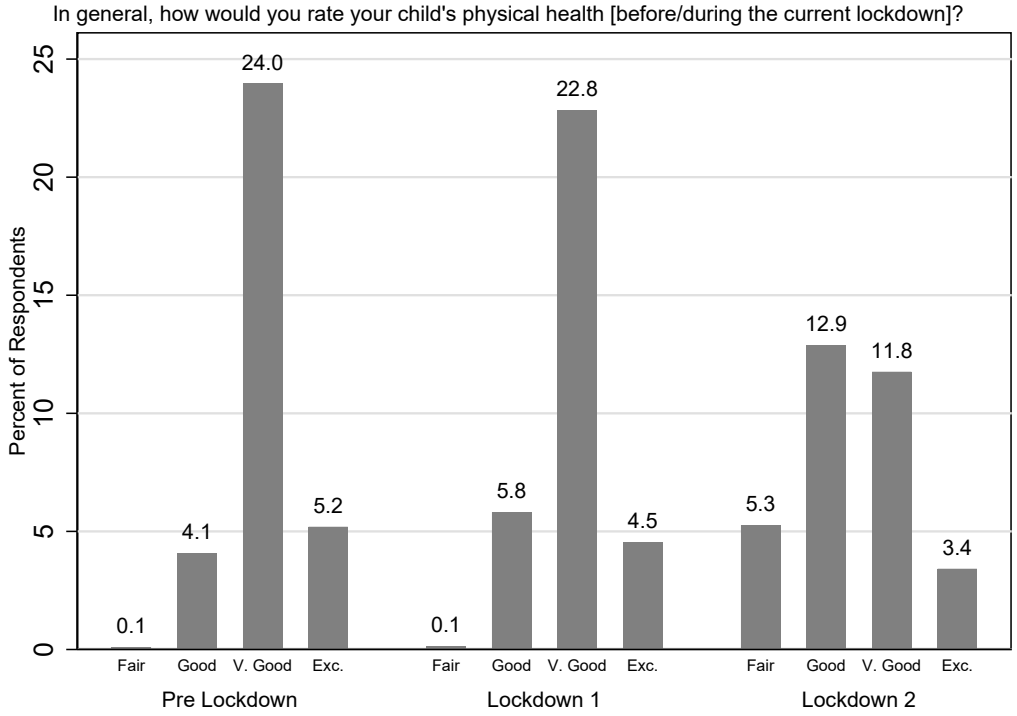
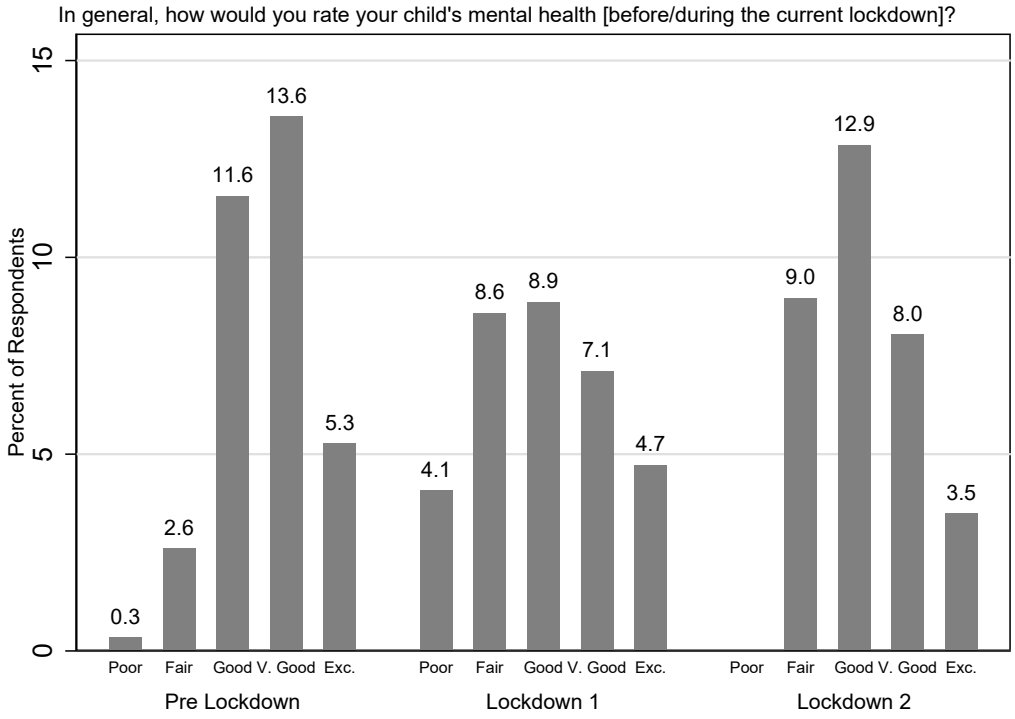
Appendix A

Figures



A1.1: Physical Health



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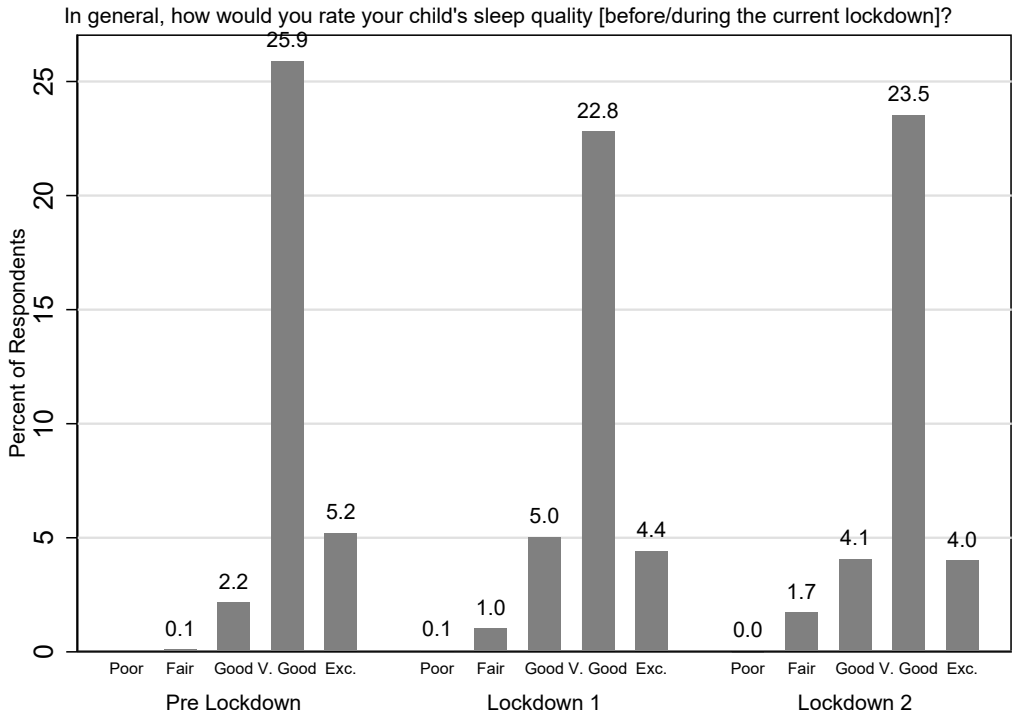
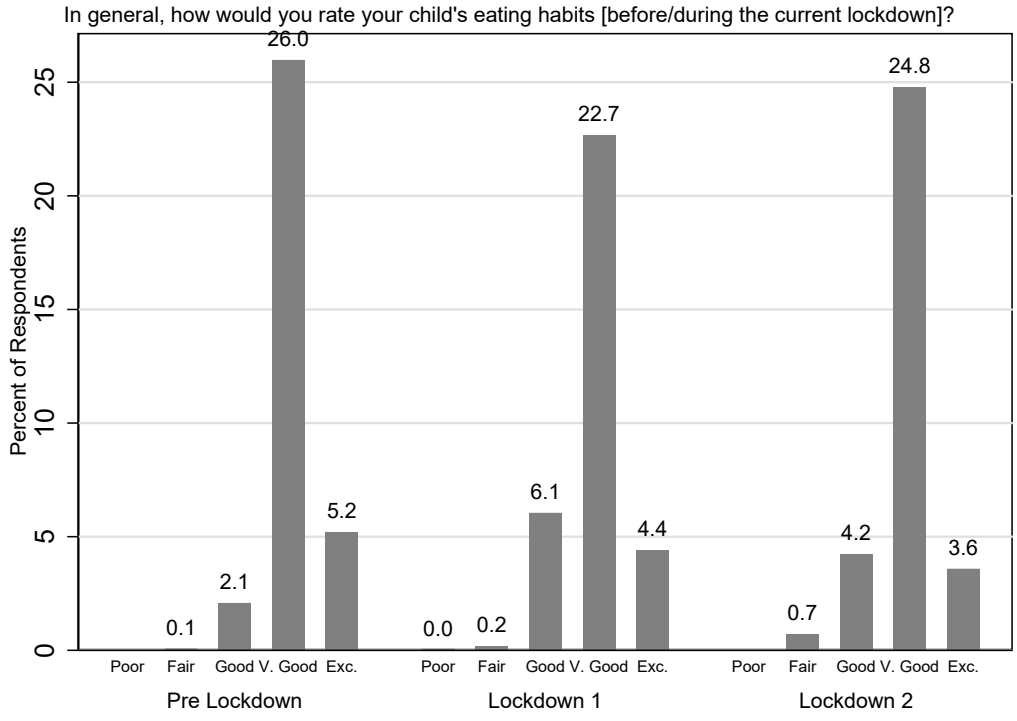
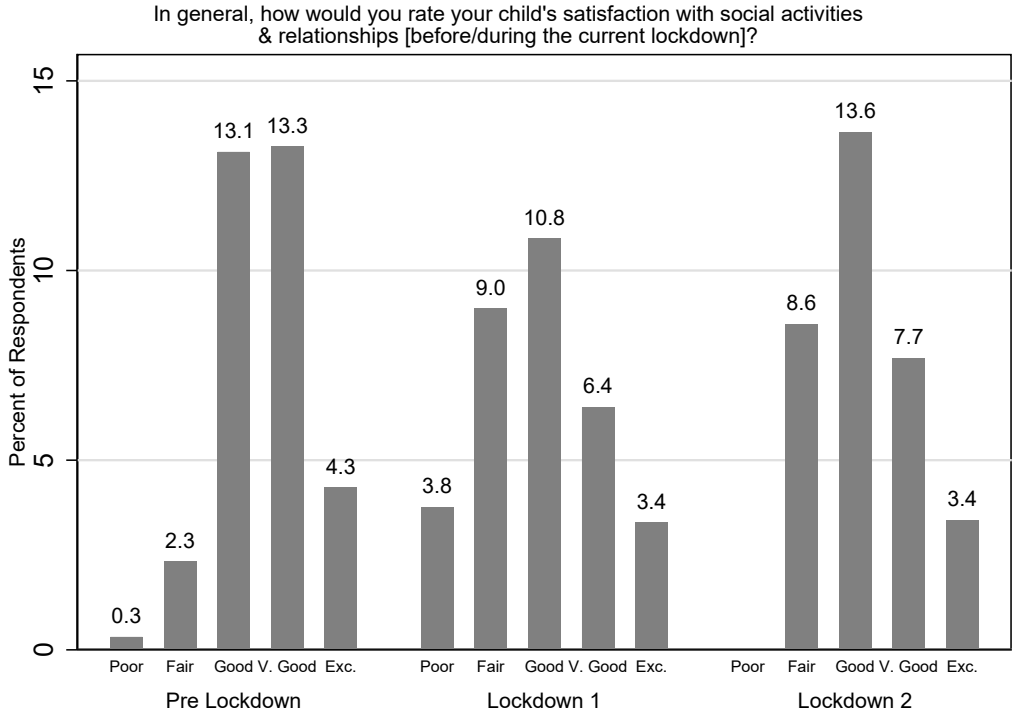


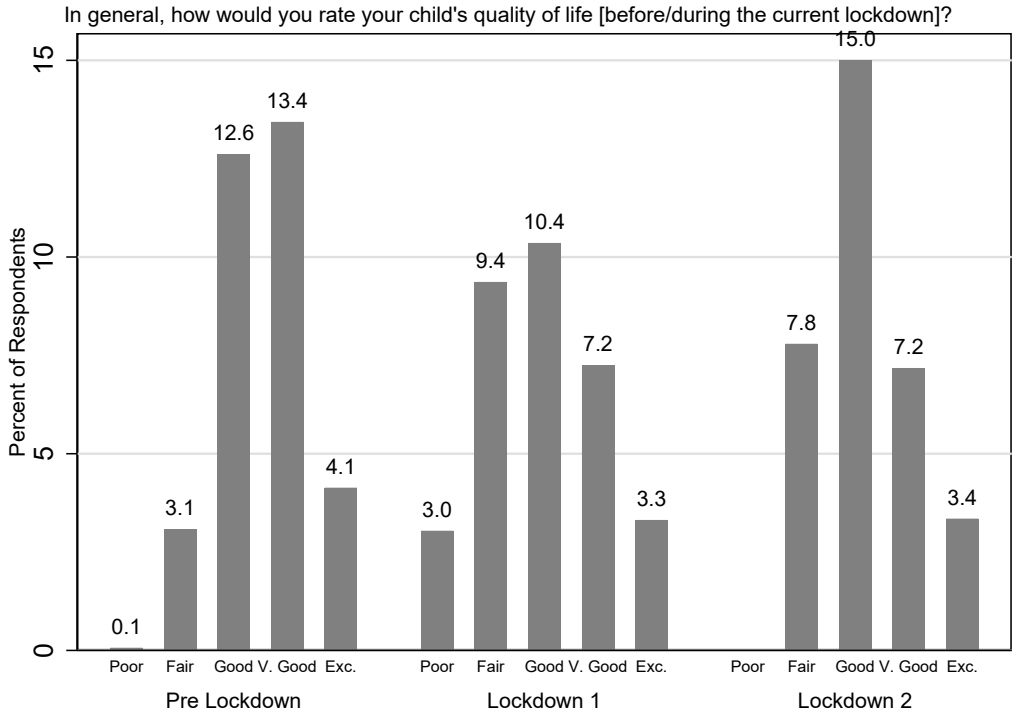
A1.3: Sleep Quality



A1.4: Eating Habits



A1.5: Social Satisfaction



A1.6: Life Quality

Tables

Table A1: School Sample in 2018

Gender	Total Schools level			Our Sample level		
	High	**Middle**	**Total**	**High**	**Middle**	**Total**
Female	11	10	21	11	4	15
Male	8	16	24	5	12	17
Total	19	26	45	16	16	32

Note: This table provides the distribution of schools by school level and gender.

Table A2: Balance Table

		(1)		(2)		(3)	(1)-(2)	(1)-(3)	(2)-(3)
Variable	**N**	**Mean/SE**	**N**	**Mean/SE**	**N**	**Mean/SE**	**T-test P-value**		
Father's Literacy (Y/N)	1417	0.341 (0.013)	980	0.341 (0.015)	975	0.339 (0.015)	0.998	0.944	0.951
Mother's Literacy (Y/N)	1417	0.146 (0.009)	980	0.143 (0.011)	975	0.142 (0.011)	0.825	0.756	0.934
Father's Age	1409	43.425 (0.177)	974	43.618 (0.216)	969	43.636 (0.216)	0.489	0.451	0.954
Mother's Age	1411	38.916 (0.165)	978	39.101 (0.197)	973	39.126 (0.197)	0.471	0.413	0.928
Child's Age	1415	14.859 (1.705)	979	13.336 (0.943)	974	13.348 (0.947)	0.488	0.492	0.993
Child's Gender	1416	0.463 (0.013)	980	0.435 (0.016)	975	0.436 (0.016)	0.178	0.198	0.957
log(Income) Household	1417	7.429 (0.107)	980	7.377 (0.129)	975	7.395 (0.129)	0.757	0.838	0.923
Household Size	1411	6.840 (0.040)	975	6.861 (0.047)	970	6.863 (0.048)	0.739	0.711	0.972

Note: This table provides the number of observations in each wave of the sample, namely, original sample, wave 1 and wave 2, along with the mean statistics for each specified variable in the original sample. The values displayed for the t-tests are p-values. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Table A3: The impact of lockdowns on children's health and well-being (additional controls)

Panel A	(1) **Physical Health**	(2) **Mental Health**	(3) **Sleep Quality**	(4) **Eating Habits**	(5) **Social Satisfaction**	(6) **Life Quality**
Lockdown 1	-0.084**	-0.64***	-0.12***	-0.11***	-0.67***	-0.59***
	(0.036)	(0.047)	(0.033)	(0.028)	(0.044)	(0.044)
Lockdown 2	-0.56***	-0.42***	-0.15***	-0.12***	-0.35***	-0.33***
	(0.033)	(0.044)	(0.030)	(0.026)	(0.041)	(0.041)
Responder	0.067	0.12**	0.030	0.023	0.13**	0.15***
	(0.044)	(0.058)	(0.040)	(0.035)	(0.054)	(0.054)
Log HH Income per capita	0.0054	0.067	0.0013	-0.013	0.045	-0.0038
	(0.044)	(0.059)	(0.041)	(0.035)	(0.055)	(0.055)
Missing Log HH Income per capita	-0.056	-0.052	0.00037	-0.0053	-0.064	-0.18**
	(0.071)	(0.094)	(0.065)	(0.056)	(0.088)	(0.087)
Child Labor	-0.46***	-0.34***	-0.053	0.0043	-0.37***	-0.32***
	(0.031)	(0.042)	(0.029)	(0.025)	(0.039)	(0.039)
Psychological State	-0.063	0.11	0.10**	0.11**	0.072	0.14**
	(0.052)	(0.069)	(0.048)	(0.041)	(0.064)	(0.064)
Parent Support	0.022	0.16***	-0.048	-0.044	0.11**	0.044
	(0.040)	(0.053)	(0.037)	(0.032)	(0.050)	(0.049)
Constant	3.90***	3.82***	4.34***	4.37***	3.70***	3.92***
	(0.16)	(0.21)	(0.14)	(0.12)	(0.19)	(0.19)
Panel B			**Hypothesis Testing**			
Lockdown 2 vs. Lockdown 1	-0.477***	0.223***	-0.026	-0.013	0.325***	0.256***
Test p-value	[0.000]	[0.000]	[0.253]	[0.516]	[0.000]	[0.000]
Total Obs	2925	2925	2925	2925	2925	2925
Total Individuals	975	975	975	975	975	975

Note: Panel A presents estimates from specification 1. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null hypothesis that the coefficients of two subsamples (as specified in Panel B) are equal. All numeric values are displayed up to 3 decimal places. Asterisks indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

Table A4: Gender

Panel A	(1) **Physical Health**	(2) **Mental Health**	(3) **Sleep Quality**	(4) **Eating Habits**	(5) **Social Satisfaction**	(6) **Life Quality**
Lockdown 1	-0.076**	-0.70***	-0.16***	-0.17***	-0.76***	-0.72***
	(0.033)	(0.042)	(0.028)	(0.025)	(0.039)	(0.039)
Lockdown 2	-0.70***	-0.45***	-0.19***	-0.16***	-0.42***	-0.43***
	(0.033)	(0.042)	(0.028)	(0.025)	(0.039)	(0.039)
Female X Lockdown 1	0.0058	0.16**	-0.026	0.044	0.22***	0.27***
	(0.049)	(0.064)	(0.043)	(0.037)	(0.060)	(0.059)
Female X Lockdown 2	0.16***	0.018	-0.017	0.023	0.079	0.12**
	(0.049)	(0.064)	(0.043)	(0.037)	(0.060)	(0.059)
Constant	4.03***	3.62***	4.09***	4.09***	3.56***	3.55***
	(0.017)	(0.022)	(0.015)	(0.013)	(0.021)	(0.021)
Panel B	**Hypothesis Testing**					
Male Lockdown 1 vs. Prelockdown	-0.076**	-0.698***	-0.160***	-0.171***	-0.762***	-0.720***
p-value	[0.019]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Female Lockdown 1 vs. Prelockdown	-0.071**	-0.541***	-0.186***	-0.127***	-0.544***	-0.449***
p-value	[0.057]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Male Lockdown 2 vs. Prelockdown	-0.696***	-0.451***	-0.185***	-0.162***	-0.420***	-0.425***
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Female Lockdown 2 vs. Prelockdown	-0.539***	-0.433***	-0.202***	-0.139***	-0.341***	-0.304***
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Total Obs	2925	2925	2925	2925	2925	2925
Total Individuals	975	975	975	975	975	975

Note: Panel A presents estimates from specification 2. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null hypothesis that the coefficients of two subsamples (as specified in the first column of Panel B) are equal. All numeric values are displayed up to 3 decimal places. Asterisks indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

Table A5: Economic state (additional controls)

Panel A	(1) **Physical Health**	(2) **Mental Health**	(3) **Sleep Quality**	(4) **Eating Habits**	(5) **Social Satisfaction**	(6) **Life Quality**
Lockdown 1	-0.076	-0.53***	-0.13**	-0.15***	-0.50***	-0.44***
	(0.062)	(0.082)	(0.059)	(0.050)	(0.077)	(0.077)
Lockdown 2	-0.70***	-0.23***	-0.21***	-0.26***	-0.16**	-0.17**
	(0.066)	(0.088)	(0.063)	(0.054)	(0.082)	(0.082)
Economic State	-0.032	0.16**	-0.011	-0.082	0.23***	0.18**
	(0.057)	(0.075)	(0.054)	(0.046)	(0.070)	(0.070)
Economic State X Lockdown 1	-0.040	-0.10	-0.014	0.064	-0.20	-0.12
	(0.10)	(0.13)	(0.096)	(0.081)	(0.12)	(0.12)
Economic State X Lockdown 2	0.33***	-0.27**	0.12	0.25***	-0.27**	-0.22
	(0.092)	(0.12)	(0.088)	(0.075)	(0.11)	(0.11)
Responder	0.058	0.13**	0.056	0.010	0.097	0.097
	(0.049)	(0.065)	(0.047)	(0.039)	(0.060)	(0.060)
Child Labor	-0.40***	-0.36***	-0.057	0.016	-0.35***	-0.31***
	(0.035)	(0.047)	(0.034)	(0.029)	(0.044)	(0.044)
Psychological State	-0.0087	0.12	0.11**	0.11**	0.032	0.10
	(0.059)	(0.079)	(0.057)	(0.048)	(0.074)	(0.073)
Support	0.0037	0.16***	-0.068	-0.065	0.091	0.058
	(0.044)	(0.059)	(0.043)	(0.036)	(0.055)	(0.055)
Constant	4.07***	3.85***	4.38***	4.43***	3.52***	3.72***
	(0.16)	(0.22)	(0.16)	(0.13)	(0.20)	(0.20)
Panel B	**Hypothesis Testing**					
Prelockdown Good Economic State vs. Bad	-0.032	0.164**	-0.011	-0.082*	0.234***	0.178**
p-value	[0.579]	[0.030]	[0.842]	[0.076]	[0.001]	[0.011]
Lockdown 1 Good Economic State vs. Bad	-0.072	0.060	-0.025	-0.018	0.035	0.058
p-value	[0.237]	[0.461]	[0.663]	[0.721]	[0.641]	[0.437]
Lockdown 2 Good Economic State vs. Bad	0.297***	-0.106	0.108**	0.168***	-0.036	-0.039
p-value	[0.000]	[0.124]	[0.030]	[0.000]	[0.578]	[0.543]
Bad Economic State Lockdown 1 vs. Prelockdown	-0.076	-0.531***	-0.129**	-0.145***	-0.499***	-0.437***
p-value	[0.223]	[0.000]	[0.030]	[0.004]	[0.000]	[0.000]
Good Economic State Lockdown 1 vs. Prelockdown	-0.116*	-0.636***	-0.143**	-0.081	-0.698***	-0.556***
p-value	[0.092]	[0.000]	[0.029]	[0.147]	[0.000]	[0.000]
Bad Economic State Lockdown 2 vs. Prelockdown	-0.697***	-0.229***	-0.213***	-0.264***	-0.162**	-0.170***
p-value	[0.000]	[0.009]	[0.001]	[0.000]	[0.048]	[0.037]
Good Economic State Lockdown 2 vs. Prelockdown	-0.368***	-0.499***	-0.094*	-0.013	-0.432***	-0.387***
p-value	[0.000]	[0.000]	[0.060]	[0.752]	[0.000]	[0.000]
Total Obs	2259	2259	2259	2259	2259	2259
Total Individuals	753	753	753	753	753	753

Note: Panel A presents estimates from specification 2. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null hypothesis that the coefficients of two subsamples (as specified in the first column of Panel B) are equal. All numeric values are displayed up to 3 decimal places. Asterisks indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

Table A6: Child Labor (additional controls)

Panel A	(1) Physical Health	(2) Mental Health	(3) Sleep Quality	(4) Eating Habits	(5) Social Satisfaction	(6) Life Quality
1st Lockdown	-0.16***	-0.47***	-0.099***	-0.13***	-0.53***	-0.44***
	(0.032)	(0.050)	(0.036)	(0.030)	(0.047)	(0.047)
2nd Lockdown	-0.22***	-0.39***	-0.15***	-0.082***	-0.31***	-0.29***
	(0.032)	(0.049)	(0.035)	(0.030)	(0.046)	(0.046)
Child Labor	-0.060	-0.0079	-0.015	0.016	-0.050	-0.0078
	(0.046)	(0.072)	(0.051)	(0.044)	(0.067)	(0.067)
Child Labor X Lockdown 1	0.13**	-0.81***	-0.11	0.10	-0.72***	-0.69***
	(0.062)	(0.097)	(0.068)	(0.059)	(0.090)	(0.090)
Child Labor X Lockdown 2	-1.08***	-0.27***	-0.021	-0.100	-0.29***	-0.29***
	(0.059)	(0.092)	(0.065)	(0.056)	(0.086)	(0.086)
Responder	0.0079	0.12**	0.030	0.017	0.12**	0.14***
	(0.037)	(0.057)	(0.040)	(0.035)	(0.053)	(0.053)
Log HH Income per capita	-0.012	0.071	0.0020	-0.015	0.048	-0.0012
	(0.037)	(0.058)	(0.041)	(0.035)	(0.054)	(0.054)
Missing Log HH Income per capita	-0.035	-0.055	-0.00028	-0.0026	-0.066	-0.19**
	(0.060)	(0.092)	(0.065)	(0.056)	(0.087)	(0.086)
Psychological State	-0.12***	0.076	0.098**	0.10**	0.043	0.11
	(0.044)	(0.068)	(0.048)	(0.041)	(0.063)	(0.063)
Parent Support	0.034	0.13**	-0.052	-0.039	0.081	0.020
	(0.034)	(0.052)	(0.037)	(0.032)	(0.049)	(0.049)
Constant	3.74***	3.69***	4.33***	4.36***	3.57***	3.80***
	(0.13)	(0.21)	(0.15)	(0.12)	(0.19)	(0.19)
Panel B	**Hypothesis Testing**					
Prelockdown Child Labor vs. Not	-0.060	-0.008	-0.015	0.016	-0.050	-0.008
p-value	[0.196]	[0.913]	[0.770]	[0.709]	[0.455]	[0.908]
Lockdown 1 Child Labor vs. Not	0.072*	-0.817***	-0.121***	0.117***	-0.767***	-0.696
p-value	[0.086]	[0.000]	[0.008]	[0.003]	[0.000]	[0.000]
Lockdown 2 Child Labor vs. Not	-1.143***	-0.281***	-0.036	-0.084**	-0.343***	-0.296***
p-value	[0.000]	[0.000]	[0.374]	[0.016]	[0.000]	[0.000]
No Child Labor Lockdown 1 vs. Prelockdown	-0.162***	-0.470***	-0.099***	-0.134***	-0.525***	-0.444***
p-value	[0.000]	[0.000]	[0.005]	[0.000]	[0.000]	[0.000]
Child Labor Lockdown 1 vs. Prelockdown	-0.030	-1.279***	-0.205***	-0.034	-1.242***	-1.132***
p-value	[0.607]	[0.000]	[0.001]	[0.540]	[0.000]	[0.000]
No Child Labor Lockdown 2 vs. Prelockdown	-0.217***	-0.389***	-0.149***	-0.082***	-0.307***	-0.289***
p-value	[0.000]	[0.000]	[0.000]	[0.006]	[0.000]	[0.000]
Child Labor Lockdown 2 vs. Prelockdown	-1.300***	-0.661***	-0.170***	-0.182***	-0.600***	-0.578***
p-value	[0.000]	[0.000]	[0.003]	[0.000]	[0.000]	[0.000]
Total Obs	2925	2925	2925	2925	2925	2925
Total Individuals	975	975	975	975	975	975

Note: Panel A presents estimates from specification 2. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null hypothesis that the coefficients of two subsamples (as specified in Panel B) are equal. All numeric values are displayed up to 3 decimal places. Asterisks indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

Table A7: Psychological state (additional controls)

Panel A	(1) Physical Health	(2) Mental Health	(3) Sleep Quality	(4) Eating Habits	(5) Social Satisfaction	(6) Life Quality
Lockdown 1	-0.065	-0.89***	-0.27**	-0.16	-0.88***	-0.62***
	(0.12)	(0.16)	(0.11)	(0.098)	(0.15)	(0.15)
Lockdown 2	-0.98***	-0.25	-0.23	-0.22**	-0.21	0.025
	(0.12)	(0.16)	(0.12)	(0.10)	(0.15)	(0.15)
Psychological State	-0.17	0.036	-0.066	-0.011	0.032	0.28
	(0.12)	(0.16)	(0.11)	(0.097)	(0.15)	(0.15)
Psychological State X Lockdown 1	-0.14	0.45***	0.16	0.010	0.38**	0.21
	(0.12)	(0.16)	(0.12)	(0.10)	(0.15)	(0.15)
Psychological State X Lockdown 2	0.53***	-0.23	0.056	0.095	-0.18	-0.43***
	(0.13)	(0.17)	(0.12)	(0.10)	(0.16)	(0.16)
Responder	0.074	0.10	0.026	0.023	0.11**	0.13**
	(0.042)	(0.057)	(0.040)	(0.035)	(0.053)	(0.052)
Log HH Income per capita	0.0066	0.057	0.0016	-0.011	0.036	-0.014
	(0.043)	(0.057)	(0.041)	(0.035)	(0.054)	(0.053)
Missing Log HH Income per capita	-0.064	-0.049	0.0037	-0.0025	-0.063	-0.18**
	(0.068)	(0.092)	(0.065)	(0.056)	(0.086)	(0.085)
Child Labor	-0.40***	-0.38***	-0.061**	0.010	-0.39***	-0.34***
	(0.031)	(0.041)	(0.029)	(0.025)	(0.039)	(0.038)
Parent Support	0.033	0.14***	-0.048	-0.039	0.081	0.018
	(0.039)	(0.052)	(0.037)	(0.032)	(0.049)	(0.048)
Constant	4.22***	3.53***	4.14***	4.10***	3.50***	3.32***
	(0.14)	(0.18)	(0.13)	(0.11)	(0.17)	(0.17)
Panel B			**Hypothesis Testing**			
Prelockdown Good Psychological State vs. Bad	-0.167	0.036	-0.066	-0.011	0.032	0.277*
p-value	[0.159]	[0.823]	[0.557]	[0.910]	[0.833]	[0.060]
Lockdown 1 Good Psychological State vs. Bad	-0.310***	0.489***	0.096*	-0.001	0.412***	0.484***
p-value	[0.000]	[0.000]	[0.011]	[0.976]	[0.000]	[0.000]
Lockdown 2 Good Psychological State vs. Bad	0.364***	-0.193***	-0.010	0.084**	-0.150***	-0.148***
p-value	[0.000]	[0.001]	[0.803]	[0.019]	[0.006]	[0.006]
Bad Psychological State Lockdown 1 vs. Prelockdown	-0.065	-0.894***	-0.274**	-0.158	-0.880***	-0.617***
p-value	[0.582]	[0.000]	[0.016]	[0.106]	[0.000]	[0.000]
Good Psychological State Lockdown 1 vs. Prelockdown	-0.209***	-0.441***	-0.112***	-0.148***	-0.500***	-0.411***
p-value	[0.000]	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]
Bad Psychological State Lockdown 2 vs. Prelockdown	-0.980***	-0.255	-0.228*	-0.219**	-0.215	0.025
p-value	[0.000]	[0.121]	[0.050]	[0.030]	[0.163]	[0.871]
Good Psychological State Lockdown 2 vs. Prelockdown	-0.449***	-0.483***	-0.172***	-0.124***	-0.396***	-0.401***
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Total Obs	2925	2925	2925	2925	2925	2925
Total Individuals	975	975	975	975	975	975

Note: Panel A presents estimates from specification 2. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null hypothesis that the coefficients of two subsamples (as specified in the first column of Panel B) are equal. All numeric values are displayed up to 3 decimal places. Asterisks indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.

Table A8: Parental support (additional controls)

Panel A	(1) Physical Health	(2) Mental Health	(3) Sleep Quality	(4) Eating Habits	(5) Social Satisfaction	(6) Life Quality
Lockdown 1	-0.00014	-0.71***	-0.13***	-0.10***	-0.72***	-0.63***
	(0.036)	(0.049)	(0.034)	(0.030)	(0.046)	(0.046)
Lockdown 2	-0.63***	-0.36***	-0.12***	-0.11***	-0.29***	-0.28***
	(0.034)	(0.046)	(0.032)	(0.028)	(0.043)	(0.043)
Support	0.21	0.075	0.15	0.079	0.27	0.15
	(0.16)	(0.21)	(0.15)	(0.13)	(0.20)	(0.19)
Support X Lockdown 1	-0.43***	0.29	-0.15	-0.13	-0.020	0.019
	(0.16)	(0.22)	(0.15)	(0.13)	(0.20)	(0.20)
Support X Lockdown 2	0.049	-0.12	-0.28	-0.13	-0.35	-0.27
	(0.16)	(0.22)	(0.15)	(0.13)	(0.20)	(0.20)
Responder	0.066	0.12**	0.028	0.022	0.13**	0.15***
	(0.043)	(0.058)	(0.040)	(0.035)	(0.054)	(0.054)
Log HH Income per capita	0.00058	0.071	0.0013	-0.014	0.047	-0.0021
	(0.043)	(0.058)	(0.041)	(0.035)	(0.055)	(0.054)
Missing Log HH Income per capita	-0.053	-0.055	-0.0031	-0.0066	-0.069	-0.19**
	(0.069)	(0.094)	(0.065)	(0.056)	(0.088)	(0.087)
Child Labor	-0.44***	-0.35***	-0.060**	0.0029	-0.38***	-0.33***
	(0.031)	(0.041)	(0.029)	(0.025)	(0.039)	(0.038)
Psychological State	-0.055	0.10	0.11**	0.11***	0.074	0.14**
	(0.051)	(0.068)	(0.048)	(0.041)	(0.064)	(0.064)
Constant	3.92***	3.81***	4.35***	4.38***	3.70***	3.93***
	(0.15)	(0.21)	(0.14)	(0.12)	(0.19)	(0.19)
Panel B			**Hypothesis Testing**			
Prelockdown Support vs. No Support	0.212	0.075	0.150	0.079	0.271	0.154
p-value	[0.173]	[0.721]	[0.303]	[0.530]	[0.166]	[0.428]
Lockdown 1 Support vs. No Support	-0.221***	0.364***	0.003	-0.053	0.251***	0.173***
p-value	[0.000]	[0.000]	[0.950]	[0.161]	[0.000]	[0.003]
Lockdown 2 Support vs. No Support	0.261***	-0.045	-0.131***	-0.051	-0.076	-0.114*
p-value	[0.000]	[0.494]	0.004	[0.194]	[0.210]	[0.061]
No Support Lockdown 1 vs. Prelockdown	-0.000	-0.708***	-0.133***	-0.100***	-0.717***	-0.626***
p-value	[0.997]	[0.000]	[0.000]	[0.001]	[0.000]	[0.000]
Support Lockdown 1 vs. Prelockdown	-0.433***	-0.419**	-0.280*	-0.233*	-0.737***	-0.607***
p-value	[0.006]	[0.048]	[0.058]	[0.068]	[0.000]	[0.002]
No Support Lockdown 2 vs. Prelockdown	-0.631***	-0.355***	-0.117***	-0.114***	-0.288***	-0.279***
p-value	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Support Lockdown 2 vs. Prelockdown	-0.582***	-0.475**	-0.398***	-0.244*	-0.635***	-0.547***
p-value	[0.000]	[0.025]	[0.007]	[0.056]	[0.001]	[0.006]
Total Obs	2925	2925	2925	2925	2925	2925
Total Individuals	975	975	975	975	975	975

Note: Panel A presents estimates from specification 2. Standard errors are in brackets. In Panel B, p-values [in square brackets] are for the null hypothesis that the coefficients of two subsamples (as specified in the first column of Panel B) are equal. All numeric values are displayed up to 3 decimal places. Asterisks indicate significance: * $p < 0.100$, ** $p < 0.050$,*** $p < 0.010$.