RESEARCH PAPER



COVID-19, absence from work and coping strategies with income loss in Bangladesh

Kea Tijdens^{1,2} • Maarten van Klaveren¹ • Ahmed Adib³ • Daniela Ceccon¹ • Tahreen Tahrima Chowdhury³

Accepted: 8 April 2023 © The Author(s) 2023

Abstract

Has workplace closure due to lockdown policies to control the spread of COVID-19 affected workplace hygiene, absenteeism, income loss and coping strategies in Bangladesh? Drawing on face-to-face interviews of 1,894 employees in tea, construction, readymade garment (RMG) and leather sectors in September–October 2020, the study shows poor supply of disinfectant and sanitizer. Absenteeism was high in April 2020 in all sectors except tea but dropped later on. Two in three workers reported income losses, due to workplace closure. 20% of workers with reduced wages received governmental food distribution and 4% cash assistance, pointing to poor implementation and rise in poverty.

Keywords Workplace closure \cdot COVID-19 \cdot Face-to-face interviews \cdot Employees in tea, construction, ready-made garment \cdot Bangladesh \cdot Income loss

Kea Tijdens
 k.g.tijdens@uva.nl
 https://aias-hsi.uva.nl/
 https://wageindicator.org/

Maarten van Klaveren maartenvanklaveren28@gmail.com

Ahmed Adib adib619@gmail.com

Daniela Ceccon dceccon@gmail.com

Tahreen Tahrima Chowdhury eco_tahreen@yahoo.com

- ¹ WageIndicator Foundation, Mondriaan Tower 17th floor, Amstelplein 36, 1096 BC Amsterdam, The Netherlands
- ² AIAS-HSI, University of Amsterdam, Amsterdam, The Netherlands, Nieuwe Achtergracht 166, 1018 WV
- ³ Bangladesh Institute of Development Studies (BIDS), Dhaka, Bangladesh

Introduction

How has COVID-19 affected workplaces in Bangladesh? This paper aims to contribute to the understanding of the COVID-19 impact on workplace hygiene, workplace absenteeism and reasons for absenteeism, income loss during absent days and related coping strategies, based on survey data. In September–October 2020 face-to-face interviews with 1894 workers were held for the Wages and Work Survey Bangladesh 2020 survey.¹ The survey focussed on four low-paying sectors, namely tea gardens and estates; ready-made garment (RMG) factories; leather factories including tanneries; and construction sites. Here poverty and job insecurity were expected to affect the workers substantially.

Our study has four research objectives. The first addresses the hygiene and personal protective equipment (PPE) measures taken at the workplace. We analyse whether workplace or personal characteristics affect workers' assessments of the related health risks. The second objective aims to understand COVID-19-related workplace absenteeism. Is the number of lost days related to workplace or to personal characteristics? The third objective is to contribute to the understanding of the reasons for being absent from the workplace. Are these related to governmental lockdown policies rather than the spread of the virus? The fourth objective addresses income losses and subsequent coping strategies. Do employees who experience income loss predominantly depend on assistance programs, either in cash or in food/rations, and to what extent do they have to rely on private solutions?

The outline of this article is as follows. First, the literature regarding the COVID-19 impact on work-related outcomes is reviewed. The second section details the lockdown measures in Bangladesh. The third section discusses the data collection and analytical strategy. The fourth section presents the empirical findings regarding the four objectives. The final section draws conclusions and suggests future research.

Literature review

The social and economic consequences of the COVID-19 pandemic are huge. Noticeable reductions in production and consumption have been observed for global value chains (Lenzen et al. 2020). The World Bank (2021) predicted that global economic output in 2021 would remain more than 5 per cent below pre-pandemic projections. The pandemic's impact on jobs and income, however, remains difficult to measure (Parisotto and Elsheikhi 2020). For Bangladesh, a mid-low-income country, the COVID-19-related national shutdown resulted in severe supply-side disruptions in all sectors of the economy, while industrial growth slowed, with specifically a sharp decline in RMG manufacturing output (Haven et al. 2021).

In the years before the pandemic, Anner (2020b) revealed how purchasing practices of RMG lead firms adversely affected working conditions and workers' rights in supplier factories. During the pandemic, RMG in Bangladesh is the most hit industry, primarily due to work order cancellations (Hossain 2021). In a follow-up study, Anner 2020a found that brands and

¹ Bangladesh was chosen, because the funder selected this country to gain insight into the wages of low paid workers (the funder was Mondiaal FNV, grant nr NL0810131, received by project manager P. Osse). The funder had outlined the study before the pandemic with fieldwork scheduled for early 2020, but this had to be delayed till late 2020. The delay created an impetus to add a substantive survey module focusing on the pandemic's impact on jobs and workers.

retailers cancelled or postponed production orders, with a devastating impact on businesses and workers. Similarly, Haven et al. (2021) concluded that the pandemic resulted in a sharp decline in RMG output. Whereas the RMG industry has been studied in detail, less information is available for other low-paid industries in Bangladesh, such as the leather industry, construction and tea plantations. For tea plantations, Idris (2018) found that working conditions of the predominantly female tea pickers are extremely poor, characterised by long hours, low pay, inadequate accommodation, very limited education and healthcare facilities, with wages dependent on reaching daily targets. Newspapers reported that tea estate owners encouraged their employees to continue to work during the lockdown, arguing that the gardens were protected areas, not accessible to outsiders, and thus the risks of a COVID-19 outbreak were less. In construction sites, job losses were mostly due to slower demand and social distancing (Genoni et al., 2020).

Workplace hygiene is crucial for workers to trust they can work safe; also, it is critical in reducing the spread of the virus. By early May 2020, a newspaper reported that some 96 garment workers had been infected, half of them since the reopening of the factories on April 26 (The Daily Star 2020). The few studies undertaken in this field do not give way to optimism. A study indicated that the overall prevalence of handwashing in households was 56.3 per cent and that the trend of COVID-19 cases gradually increasing was related to areas with a low handwashing practice in households (Ahmed and Yunus 2020). As COVID-19 spread quickly across the whole of Bangladesh, due to a hampering waste disposal system the increased use of Personal Protective Equipment (PPE) could lead to secondary environmental catastrophes (Shammi and Tareq 2021). Another study stressed the food security aspect of vulnerable populations (Ahmed et al. 2021). Rambhajan Koiri, president of the Sylhet valley tea workers' union, stated: "Most of the tea-gardens do not prioritise safe distancing issues. They also did not provide hand-washing soap and masks to the workers. These workers are working in an atmosphere of risk" (The Business Standard, 6 JAN 2022).

Workplace absenteeism is related to income loss. Based on interviews with 2,671 adults in Bangladesh, World Vision (2020) concluded that almost 90 per cent of the interviewed households reported an income drop and that almost 95 per cent had no or inadequate food access. Another study showed that more than 70 per cent of households reported a drop in income (Egger and others, 2021). Income loss was expected to be higher in the farm sector than outside that sector (Mottaleb et al. 2020). Interviews with tea plantation workers confirmed that the owners had delayed the workers' wages, blaming a fall in tea sales due to the pandemic (UN Sustainable Development Group 2021). RMG workers were entitled to be supported under the government's stimulus package, albeit with a few months' delay, and according to a trade union spokesman, they were rehired against lower pay rates (Fairwear 2020). For daily and wage workers, the probability of reporting an income loss was the largest among construction workers, compared with other occupational groups (Genoni et al., 2020). A telephone survey in poor and slum areas in two cities in Bangladesh, conducted in June and July 2020, stressed the limited availability of public and private assistance. The most frequently mentioned coping mechanism was receiving emergency funds from relatives and friends, without interest (World Bank 2020).

The Bangladesh lockdown measures

In Bangladesh the lockdown period initially covered March 26 (Independence Day)-May 30 2020. Officially referred to as a 'general holiday,' the lockdown was extended multiple times for a span of ten days within this period. During the first ten days of lockdown, there were no travel restrictions, causing many to rush back to their hometown/-village while using overcrowded means of transport and compromising social distancing and other protective measures. When the first lockdown period ended, RMG workers rushed back to work en masse due to lack of communication with their employers, creating chaos and affecting social distancing measures. Following the lockdown announcement on March 25, 2020, the Bangladesh Garment Manufacturers and Exporters Association (BGMEA) and the Bangladesh Knitwear Manufacturers and Exporters Association (BKMEA) urged RMG factory owners to close their doors. Soon afterwards, a meeting of union leaders, factory owners and government officials revised this declaration, announcing that production units should stay open and provide 'proper health measures' for employees. This was sanctioned by the government, though obviously contradicting general lockdown rules. On April 4, however, BGMEA and the government decided that factories should close for one week until April 11.

COVID-related initiatives taken by BGMEA included a COVID-19 testing lab, necessary testing, prevention and curbing facilities/services provided free of charge, free telemedicine consultations and an online portal for disseminating information to infected workers. A survey covering 2,334 RMG factories in June 2020 found that the measures adopted were use of hand sanitizer or soap and checking body temperature at the gate of entry, enforcing the use of face masks, maintaining a safe distance of at least one meter between workers and disinfection of workstations and frequently used equipment (CED/ BracU, 2020).

Under the lockdown, public road transportation was suspended. All non-essential businesses and educational institutions were closed, except for pharmacies, food markets and sales points for other necessities. Authorities also advised the public to stay home and to travel only if necessary. For some weeks police force was intensively deployed to enforce lockdown measures, often in a hard handed manner (Ali et al. 2021). Enforcement in major cities, notably Dhaka, in the early stages of lockdown was rather strict, though in the later months complaints increased against police commanders and health officers for being too lax. An observer notes that "social distancing is a privilege of the rich and middle class in Bangladesh. Most Bangladeshis live near each other" (Ramachandran 2020).

On June 5, the government took the decision to impose area-based restrictions to contain the coronavirus outbreak and divided the infected areas into three zones—red, yellow and green. In red zones all activities had to be closed with strict law enforcement monitoring. Yellow zones had relaxed restrictions and green zones had no restraints. The tea sector was not formally exempt, but it was generally assumed that social distancing was not an issue there.

On March 25, just before the lockdown, the Bangladesh government announced a first stimulus package of 50 billion Bangladeshi Taka (BDT) (USD 590 million) for export-oriented industries. In total, 19 stimulus packages were announced, amounting to 3.7 per cent of the country's GDP; the benefits from these packages were gained by RMG firms more than other sectors (Raihan 2020). According to BGMEA, by August 2020 the RMG sector had received stimulus packages worth 105 billion BDT (USD 1.24 billion) to pay wages to workers laid-off between April–July (ILO 2021). A survey of RMG factories and RMG workers, however, revealed that more than three-quarter of the factories said that they had paid their laid-off or retrenched workers their salaries and outstanding dues, whereas one in three rehired workers indicated that they had received their wage only partially and one in five had received nothing (Moazzem and Ahmed 2020).

Data collection

The survey

The questionnaire for the *Wages and Work Survey Bangladesh 2020* has been based on the multilingual WageIndicator web survey. The latter survey measures wages, working hours, employment contract, occupation and workplace-related items, as well as house-hold composition and personal characteristics. As it has been running continuously since the early 2000s, the survey questions are well-tested for measurement errors. The survey was adapted for suitability with a face-to-face survey mode and with Bangladeshi work standards.

The plans for the survey measuring wages in low-paid industries were developed in 2019, with fieldwork scheduled for early 2020. The COVID-19 pandemic delayed fieldwork, yet created the impetus to add a substantive survey module focusing on the pandemic's impact on jobs and workers. A set of questions were added to the survey about hygiene facilities at the workplace, absenteeism from the job, the reasons for being absent and the workers' coping strategies with the related income loss. The questionnaire used contained 144 questions, of which 52 were related to the COVID-19 pandemic. The Bengali and English versions of the questionnaire are available upon request (Tijdens et al 2020).

Sampling procedure

Given the purpose of the study, we planned to interview workers at their workplaces mediated through the appropriate authorities (industry associations and employers). A threestep sampling procedure was applied (Tijdens et al 2020). First, survey areas were selected based on the geographical locations of the companies in RMG, leather and tea sectors, as collected from the websites of business registries, supplemented with information from the Open Apparel Registry and from BIDS, the Bangladesh research institute. Tea gardens and estates are predominantly located in the Sylhet (80%) and Chattagram (14%) divisions, whereas RMG factories can mainly be found in the Dhaka (83%) and Chattagram (15%) divisions. Leather factories are located in the Dhaka (81%) and Chattagram (11%) divisions. Unlike these three sectors, construction sites are not fixed as these enterprises may operate throughout the districts, for which Dhaka and Chattagram were selected. The focus was on three types of construction sites, namely private building (residential and non-residential), public building (residential and non-residential) and public sector construction other than buildings (civil engineering works).

Second, to select companies in the selected survey areas, membership lists of trade associations were used to randomly select the tea gardens and estates, RMG factories and the leather factories. For construction, a random walk searching for construction sites was undertaken in Dhaka and Chattagram. For the RMG, leather and tea sectors, the trade associations were requested to issue letters to the selected firms stating the importance of the survey, as well as requesting them to allow workers to be interviewed. The selected companies that declined were replaced.

Third, once the interviewers arrived at the selected businesses, they requested the management or the human resource team to facilitate the interview procedure with the required number of employees from specified occupations. A predefined list of occupations included the most common job titles in the sector at stake. In total, 401 workers in five tea gardens and 15 tea estates, 724 RMG workers in 65 factories, 337 leather and footwear workers in 34 factories, and 432 construction workers from several construction sites were interviewed, attaining a total of 1,894 interviewees.

Fieldwork

The fieldwork took place from September 7 to November 2, 2020. The data were collected in a period of two months with two five-member enumerator teams under a supervisor employed for conducting the survey. The field team got five days of training about the sampling and the data collection approach. The survey was made available in an app-mode, and the enumerators used a tablet for registering the questionnaires. Once completed, they were uploaded into WageIndicator's survey engine. To ensure the quality of the survey work, the field team was required to provide real-time updates using a Google doc form from the field. For each interview, the purpose of the study was explained to the interviewee and consent was asked. The interviewees were told that the interview was anonymous and that no factories/estates/sites could be identified by name.

The survey participants were provided with token compensation (a pack-of-five face masks or equivalent cash) as an appreciation for their time, while they were also encouraged to use face masks. The respondents' acknowledgement of receipt and contact numbers were recorded for follow-up checks on the authenticity of the interview and the provided incentives. The survey app contained built-in routing and alerting scripts to prevent unlikely combinations of answers. After the fieldwork had been completed, data quality was checked for wages and working hours as the most critical variables. All reported wages were converted to monthly paid wages. The workers in the tea gardens and estates were paid very low wages as the employer provided housing and food. To quantify such in-kind payments, an estimation of monthly costs for food and housing was added to the reported wages in this sector in the region. For a single employee at a tea garden and estate in Chittagong, 6660 BDT was added to the reported monthly wage, and 7750 BDT in Sylhet.

Analytical strategy

In the next section, the analytical strategy for the four research objectives and the dependent variables will be detailed. For the statistical models we used two sets of explanatory variables, namely the characteristics related to the workplace and those related to the individual worker. Table 1 shows their mean values, standard deviations and missing observations.

In the next section, the statistical analyses for the four research objectives will be discussed. Descriptive methods (cross-tabulations and t tests) as well as multivariate modelling have been used as appropriate: linear regression modelling for continuous dependent variables and logistic modelling for binary dependent variables. For reasons of readability, results are only reported for significance levels at 10, 5 or 1 per cent.

	Mean	Std. Dev	Missing obs
Workplace characteristics			
Sector tea (0/1)	0.21	0.409	0
Sector RMG (0/1)	0.38	0.486	0
Sector leather (0/1)	0.18	0.383	0
Sector construction (0/1)	0.23	0.420	0
Private single ownership (0/1)	0.62	0.486	0
Firm size $(0=1-4,,10=5000 \text{ or more})$	5.45	2.652	2
Supervisory position (0/1)	0.03	0.160	25
Semiskilled or skilled job (0/1)	0.72	0.448	3
Hourly wage in 10 deciles (1-10)	5.48	2.848	38
Individual characteristics			
Children at home (0/1)	0.51	0.500	5
Living with partner (0/1)	0.60	0.490	5
Number of people living in household (1–6)	3.57	1.731	8
Female (0/1)	0.43	0.496	8
Age (13–70)	29.66	9.232	10
Education $(1 = Primary,, 3 = Upper secondary)$	1.66	0.745	0

Table 1 Mean values, standard deviations and missing observations of the variables used in the models

Source: Wages and Work Survey Bangladesh 2020

Results

Hygiene measures and facilities at the workplace

First, we aimed to understand the non-pharmaceutical measures taken by the workplace authority to protect employees. Workers were asked to assess the adequacy of five measures related to workplace hygiene, namely safe distance between workstations; safe distance/space in dining seating areas; independent workstations as opposed to shared workstations; independent use of all work equipment as opposed to shared use; and the number of washrooms/toilets. Workers were also asked to assess the adequacy of the supply of personal protective equipment (PPE): disinfectant; hand sanitizer; handwashing facilities; masks; and gloves. For all items, answers could be chosen from four response options: not at all adequate (high risk); somewhat adequate (moderate risk); adequate (low risk), or not applicable. For all items, except for the availability of gloves (6%), fewer than 2 per cent of the workers answered 'not applicable'.

Employees were most positive about the safe space in seating in dining areas and the handwashing facilities (56% and 55%, respectively, assessed a 'low risk', Fig. 1), followed by the independent use of work equipment (47% 'low risk'). Workers assessed the supply of disinfectant, sanitizer and gloves as least positive (21%, 25% and 8% 'low risk'). When breaking down assessments by sector, the hygiene measures and amenities were assessed as the highest risks in construction, followed by tea gardens and estates. In the latter particularly, an inadequate number of washrooms and toilets, disinfectant and sanitizer were assessed as high risks. Compared to the construction sites and tea



Fig. 1 Percentage of workers indicating that the hygiene measures and hygiene facilities are adequate (low risk), by sector. Source: Wages and Work Survey Bangladesh 2020, N = 1774

gardens and estates, the hygiene measures and facilities in RMG and leather factories were assessed as far more adequate.

To assess the health risks at the workplace, we computed a Hygiene Index (HI) by counting the answers to nine of the ten measures and amenities. The higher the HI score, the more adequate the hygiene and amenities were perceived to be and thus the lower the risks of infection. The supply of the tenth amenity, gloves, was not included, as gloves were rarely provided in the tea gardens and estates nor in the construction sector. The HI score ranges from 9 = 1east adequate to 27 = most adequate (Mean = 19.83, SD = 4.98). Table 2 presents the mean scores of the HI for characteristics related to the workplace and to the individual workers.

Using multivariate analysis, we explored the effect of the workplace-related factors (Model 1), absenteeism during March-May and June-August (Model 2), and the worker's individual characteristics (Model 3) on the HI score (Table 3). As could be expected from the bivariate graph, working in the tea or construction sector lowered the HI (Model 1); hence, COVID-19-related measures and amenities were poorer, whereas the opposite is true for RMG. Firm size impacted the HI, with larger companies providing more adequate measures and amenities than smaller ones. Workers in (semi-)skilled jobs reached a higher HI score, assessing the hygiene measures and amenities as lower risks than unskilled workers did. Absence from the workplace in March-May did not impact the HI score, but absence in June-August affected the score negatively, probably due to relatively less attention to hygiene measures along with decreasing rates of infection. Workers with one or more children in their household assessed the hygiene measures as riskier, whereas the opposite was the case for those living with a partner and for those living in large households. Female workers assessed their workplaces as being less risky than males, probably because their attention to health hygiene is relatively better than that of their male counterparts. Employees aged under 20 and those aged 20–29 assessed the risks as being higher. Employees with more education had a higher

Characteristics		Number of observa- tions n (%)	Hygiene index mean \pm SD
Workplace characteristics			
Sector	Construction	386 (22.7)	13.93 ± 3.51
	Теа	308 (18.1)	17.80 ± 3.08
	RMG	696 (41.0)	23.07 ± 3.24
	Leather	308 (18.1)	21.96 ± 3.52
Ownership	Other ownership	647 (38.1)	20.75 ± 4.48
1	Private single ownership	1051 (61.9)	19.27 ± 5.19
Firm size (#employees)	1–4	87 (5.1)	15.06 ± 4.25
	5–10	115 (6.8)	14.08 ± 3.54
	10–20	117 (6.9)	13.45 ± 3.46
	20–50	71 (4.2)	16.58 ± 5.27
	50-100	118 (6.9)	18.63 ± 4.00
	100-200	203 (12.0)	20.62 ± 3.24
	200-500	343 (20.2)	21.56 ± 4.09
	500-1000	269 (15.8)	21.04 ± 4.31
	1000-2000	159 (9.4)	22.08 ± 3.64
	2000-5000	173 (10.2)	23.93 ± 3.10
	5000 or more	43 (2.5)	21.16 ± 3.66
Skill level	Unskilled	429 (25.3)	16.01 ± 3.75
	(Semi)skilled job	1269 (74.7)	21.13 ± 4.68
Wage decile	1	174 (10.2)	18.28 ± 5.25
	2	177 (10.4)	21.31 ± 4.29
	3	165 (9.7)	20.90 ± 4.87
	4	176 (10.4)	21.60 ± 4.25
	5	170 (10.0)	18.56 ± 4.91
	6	149 (8.8)	18.64 ± 4.05
	7	179 (10.5)	18.87 ± 4.81
	8	179 (10.5)	20.49 ± 5.07
	9	181 (10.7)	18.81 ± 5.61
	10	148 (8.7)	20.89 ± 4.94
Absent March–May	No	339 (20.0)	17.89 ± 3.52
	Yes	1359 (80.0)	20.32 ± 5.17
Absent June-August	No	1509 (88.9)	20.15 ± 4.96
	Yes	189 (11.1)	17.29 ± 4.44
Individual characteristics			
Living with child	No	872 (51.4)	19.88 ± 5.22
	Yes	826 (48.6)	19.79 ± 4.72
Living with partner	No	698 (41.1)	19.00 ± 5.29
	Yes	1000 (58.9)	20.42 ± 4.67

Table 2 Number of observations for the workplace and personal characteristics and their mean values with standard deviations for the Hygiene Index, which ranges from 9 = least adequate to 27 = most adequate

Characteristics		Number of observa- tions n (%)	Hygiene index mean \pm SD
Members in household	1, just me	318 (18.7)	17.62 ± 5.57
	2	219 (12.9)	22.09 ± 4.50
	3	286 (16.8)	21.04 ± 4.71
	4	298 (17.6)	19.92 ± 4.71
	5	276 (16.3)	19.50 ± 4.59
	6 or more	301 (17.7)	19.60 ± 4.47
Gender	Male	967 (56.9)	18.72 ± 5.40
	Female	731 (43.1)	21.31 ± 3.90
Age group	<20	132 (7.8)	17.32 ± 4.64
	20–29	861 (50.7)	20.62 ± 4.93
	30–39	462 (27.2)	20.08 ± 5.05
	40-49	169 (10.0)	18.04 ± 4.28
	50+	74 (4.4)	17.70 ± 4.20
Education level	No education	249 (14.7)	17.67 ± 3.88
	Primary education	585 (34.5)	19.02 ± 5.05
	Second stage of basic education	575 (33.9)	20.24 ± 4.87
	Upper secondary education	289 (17.0)	22.54 ± 4.60
Total	Total	1698 (100)	19.83 ± 4.98

Table 2 (continued)

Source: Wages and Work Survey Bangladesh 2020

HI score, which is consistent with an older study conducted in Bangladesh finding that workers with more education assessed their workplaces as less risky (Mahmud 2009).

Absenteeism from the workplace

The second research objective aimed to understand employee absenteeism, based on two questions, namely "From late March to late May 2020, were you absent from work for a long period or the entire period, due to COVID-19 restrictions?" and a similar question for the period June–August 2020. If the answer to either question was 'Yes', the next question asked how many days the worker had been absent in each month. Absenteeism was very high in the first months of the pandemic, when the government ordered a lockdown for all industries (Fig. 2). In April, workers in RMG, leather and construction were absent for 25 days on average, approximately the whole month. In May, absence days remained high in construction but were halved in RMG and leather. In June, the mean absence days had further dropped to five for construction, three for leather and two for RMG. By August, the number of absent days had dropped further to almost zero in all three sectors. In the tea gardens and estates, no absence was reported for any of the months studied.

All employees reporting absence in June–August had also been absent in March–May; no new absence cases were reported. Obviously, the lockdown and its high absenteeism was an immediate reaction to start of the pandemic. Absenteeism dropped in the months to follow, as lockdown policies were discontinued although the number of infected cases

	Model 1	Model 2	Model 3
Constant	17.723*** (0.474)	18.522*** (0.720)	17.871*** (0.824)
Workplace characteristics			
Sector Tea (0/1)	-4.152*** (0.360)	-4.655*** (0.651)	-4.411*** (0.665)
Sector RMG (0/1)	0.633*** (0.233)	0.653*** (0.232)	0.647*** (0.234)
Sector Construction (0/1)	-5.926*** (0.337)	-5.993*** (0.336)	-5.659*** (0.348)
Private single ownership (0/1)	-0.189 (0.171)	-0.187 (0.171)	-0.107 (0.169)
Firm size $(0 = 1 - 4,, 10 = 5000 +)$	0.447*** (0.051)	0.404*** (0.052)	0.384*** (0.052)
(Semi)skilled job (0/1)	0.939*** (0.280)	0.932***(0.279)	0.684** (0.283)
Wage decile (1–10)	0.171*** (0.028)	0.171*** (0.028)	0.140*** 0.029)
Absent March-May 202 (0/1)		-0.429 (0.566)	-0.328 (0.559)
Absent June–August 2020 (0/1)		-1.104*** (0.257)	-1.097*** (0.255)
Individual characteristics			
Living with child (0/1)			-0.531** (0.234)
Living with partner (0/1)			0.437** (0.210)
People in household (1–6)			0.088* (0.052)
Female (0/1)			0.444** (0.191)
Aged between 10 and 19 (0/1)			-1.482*** (0.397)
Aged between 20 and 29 (0/1)			-0.644** l(0.273)
Aged between 30 and 39 (0/1)			-0.029 (0.262)
Education 0=None,,4=Upper secondary or plus			0.533*** (0.100)
No. of observations	1698	1698	1698
R-squared	.591	.596	.609

 Table 3 Estimated functions explaining the Hygiene Index (dependent variable): Ordinary Least Square (OLS) estimates

Source: Wages and Work Survey Bangladesh 2020

Notes: Values in parentheses are standard errors. ***, ** and * indicate 1%, 5% and 10% levels of significance respectively



Fig.2 Mean number of absent working days by sector (Y-axis left-hand side), and number of infected cases in Bangladesh (Y-axis right hand side), by month. Source: Wages and Work Survey Bangladesh 2020 (N = 1,894, missing March-May = 7, June-August = 22), and number of infected people in Bangladesh

Independent variables	Absent days March-May	Absent days Mar-Aug
Constant	49.094***(3.044)	58.129***(4.190)
Workplace characteristics		
Sector RMG (0.1)	- 1.554 (1.031)	- 1.275 (1.419)
Sector Construction (0.1)	- 1.593 (1.571)	-2.652 (2.162)
Private single ownership (0.1)	5.927*** (0.827)	5.758*** (1.138)
Firm size $(0 = 1 - 4,, 10 = 5000 +)$	-1.749*** (0.243)	-2.795*** (0.335)
(Semi)skilled job (0.1)	-0.932 (1.438)	-2.884 (1.979)
Wage decile (1–10)	0.440*** (0.133)	0.384** (0.184)
Individual characteristics		
Living with child (0.1)	-2.019* (1.111)	-2.377 (1.529)
Living with partner (0.1)	0.234 (1.020)	0.839 (1.404)
People in household (1–6)	0.133 (0.243)	0.457 (0.335)
Female (0.1)	-1.212 (0.945)	-2.605** (1.301)
Aged between 10–19 (0.1)	3.627* (1.977)	4.573* (2.721)
Aged between 20–29 (0.1)	1.975 (1.513)	2.764 (2.082)
Aged between 30–39 (0.1)	2.199 (1.524)	2.824 (2.097)
Education 0=None,,4=Upper secondary or plus	-0.581 (0.470)	-0.110 (0.648)
No. of observations	1418	1418
R-squared	.198	.197

 Table 4
 Estimated functions explaining the number of absent days between March and May and between

 March and August (dependent variables): Ordinary Least Square (OLS) estimates

Source: Wages and Work Survey Bangladesh 2020, selection sector RMG, Leather, Construction Values in parentheses are standard errors

***, ** and * indicate 1%, 5% and 10% levels of significance respectively

in Bangladesh increased dramatically (Fig. 2). Not surprisingly, the correlation between absent days and infections was negative for the seven months under study (r = -0.60). Relaxing the lockdown was due to pressure from those who feared loss of jobs, factory closure and the possibility of famine (World Health Organization 2020; Biswas et al. 2020).

To increase our understanding of absence from work, we explored, using a multivariate approach, absence of workers for the period March-May 2020 (mean=44.9 days, SD=15.5, min=0, max=90) and for the whole period March-August 2020 (mean=48.6 days, SD=21.3, min=0, max=149). Excluded were those in the tea estates and gardens because they were not absent. Workplace characteristics substantially affected the number of absent days (Table 4). Over both periods, workers in private firms with single owners reported almost six additional absent days compared to employees in firms with multiple, foreign, or governmental owners (5.9 ± 0.8 for March-May, 5.7 ± 1.1 for March-August). In both periods, workers in smaller firms reported fewer absent days than those in larger firms (-1.7 ± 0.2 for March-May and -2.7 ± 0.3 for Mar-Aug for each size group). This result is in line with a report concluding that microenterprises and SMEs in Bangladesh have been hit hardest by the pandemic and restriction measures (Unido 2020). For every upward step up in the wage decile, workers reported more absent days in both periods (0.4 ± 0.1 for March-May, 0.3 ± 0.1 for Mar-Aug). Individual characteristics barely affected the number of absent days. Workers with children in their household reported two



Fig.3 Reasons for being absent from the workplace, selection: absent workers only, by period. Source: Wages and Work Survey Bangladesh 2020 (for March–May N=1457, for June–August N=208)

absent days less between March–May (- 2.0 ± 1.1). For the whole period, female workers reported almost three absent days less (- 2.6 ± 1.3). For the whole period, workers younger than 20 years of age reported more than three absent days (3.6 ± 1.9 for March–May, 4.5 ± 2.7 for Mar-Sep). The low R-squared value indicates that our independent variables do not explain much of the variation in absent days. This challenges the role of workplace closure rather than absent days in the models: see the next section.

Reasons for absence

The third research objective aimed at understanding the reasons for being absent from the workplace. Employees who had been absent were offered six reasons for their absence: workplace closure, traffic restrictions, area-based government restrictions, the risks of infection, worker's illness and illness in the worker's family. Most absent workers reported only one reason, sometimes two reasons, while very few reported three or four.

The descriptive statistics reveal that three reasons stand out for being absent, namely workplace closure, unavailability of transport and area-based government restrictions. The latter two reasons are highly correlated (r=0.749, p < 0.01); in the remainder, we merged these two variables into one reason. In the periods March–May and June–August, the main reason for being absent was workplace closure; 72 per cent and 73 per cent, respectively, of absent workers reported so (Fig. 3). In March–May, area restrictions or absence of transport accounted for another 19 per cent, whereas in June–August scores for this same reason had dropped below 10 per cent. Only 2 per cent of workers reported absence due to illness of the worker or the worker's family. Absence because the worker was afraid of becoming infected, was reported by fewer than 7 per cent of absent workers in March–May, but that share went up to 18 per cent in June–August.

In a logistic regression model, the three most frequently mentioned reasons for absenteeism were investigated, i.e., workplace closure from March–May (0.72 ± 0.44), traffic restrictions or area-based government restrictions from March–May (0.71 ± 0.45) and workplace closure from June–August (0.19 ± 0.39). The analysis was restricted to workers who had reported absences in the relevant period. Table 5 shows that for the absence reasons given in March–May, most workplace-related characteristics are significant, whereas

	Workplace closure March–May	Traffic restrictions March-May	Workplace closure June-August
Workplace characteristics			
Sector (ref. construction)			
Sector RMG	0.377^{***} (0.216-0.659)	5.431^{***} (2.693–10.954)	1.459 (0.345–6.176)
Sector Leather	0.960 (0.571–1.613)	1.890*(0.966-3.696)	2.665 (0.660–10.758)
Private single ownership (0/1)	$0.480^{***}(0.360-0.640)$	2.102^{***} ($1.521-2.905$)	0.636(0.277 - 1.459)
Firm size $(0 = 1-4,, 10 = 5000 +)$	$0.897^{***}(0.827-0.973)$	$1.129^{***} (1.030 - 1.237)$	0.835 (0.627–1.112)
Semiskilled or skilled job (0/1)	0.930 (0.723–1.196)	1.206 (0.776–1.873)	1.084(0.726 - 1.620)
Wage decile $(1 = lowest,, 10 = highest)$	0.880^{***} ($0.840-0.922$)	1.132^{***} (1.071–1.195)	0.858^{**} ($0.751 - 0.980$)
Individual characteristics			
Living with children (0/1)	0.923(0.654 - 1.304)	0.950 (0.650–1.388)	3.350*(0.940-11.939)
Living with partner (0/1)	0.939 (0.676–1.305)	1.085(0.753 - 1.563)	0.548(0.178 - 1.685)
People in household (1–6)	0.993 (0.962–1.024)	0.988 (0.962–1.015)	$0.610^{***}(0.492-0.756)$
Female (0/1)	1.107(0.841 - 1.458)	0.883 (0.652–1.195)	$0.836\ (0.385 - 1.818)$
Age (ref. 29 years or less)			
30–39	0.946 (0.696–1.286)	$0.888\ (0.624 - 1.263)$	1.016(0.361 - 2.860)
40+	1.620*(0.932-2.815)	0.501*(0.243-1.031)	1.778(0.443 - 7.143)
Education (ref. primary)			
Second stage of basic education	1.075(0.810 - 1.428)	0.792(0.571 - 1.099)	1.277 (0.581 - 2.807)
Upper secondary education	1.298(0.911 - 1.848)	$0.763\ (0.514 - 1.130)$	0.848 (0.312–2.301)
Constant	27.482^{***} (15.712–48.066)	$0.013^{***}(0.006-0.027)$	$45.638^{***}(10.345-201.334)$
Ν	1431	1431	200
LR chi2 (15)	154.810	183.030	32.980

the individual characteristics are not, except for education. Compared to the reference group of absent construction workers in March–May, RMG workers reported fewer workplace closures as the reason for absence (Odds Ratio, abbreviated as OR 0.37; 95% CI:0.21–0.65; p < 0.01), and both RMG and leather workers reported more transport or area restrictions (OR 5.43; 95% CI:2.69–110.95; p < 0.01; resp OR 1.89; 95% CI: 0.96–3.69; p < 0.01). Employees in firms with private single ownership reported fewer workplace closures as the reason for being absent in March–May, and more transport or area restrictions compared to workers in firms with other ownership types (OR 0.48; 95% CI:0.36–0.64; p < 0.01; resp OR 2.10; 95% CI:1.52–2.90; p < 0.01). With every larger firm size group, workers reported fewer workplace closures and more transport or area restrictions (OR 0.89; 95% CI: 0.82–0.97; p < 0.01; resp OR 1.29; 95% CI: 1.03–1.23; p < 0.01). With every upward step in the wage decile, workers reported fewer workplace closures and more transport or area restrictions (OR 0.88; 95% CI: 0.84–0.92; p < 0.01; resp OR 1.13; 95% CI: 1.07–1.19; p < 0.01). Compared to the reference group of absent workers aged 29 years or less, those aged 40 and over reported more workplace closures (OR 1.62; 95% CI: 0.93–2.18; p < 0.1).

With fewer observations in the regression model because fewer workers were absent in June–August, the factors causing absenteeism due to workplace closure did not reveal significant odds ratios for workplace characteristics, except for the wage deciles. For every upward step in the wage decile, workers reported fewer workplace closures as a reason for absence (OR 0.85; 95% CI: 0.75–0.98; p < 0.05). In June–August, individual characteristics became more important for reporting workplace closure. Workers with children at home reported more often workplace closure as a reason for absence, whereas for every extra household member, this reason was reported less often (OR 3.35; 95% CI: 0.94–11.93; p < 0.01; OR 0.61; 95% CI:0.49–0.75; p < 0.01).

Income loss during absent days

Finally, for our fourth research objective we aimed to understand how workplace absence accompanied income losses and how workers coped with these losses. The COVID-19 module in the questionnaire asked all employees if their income had been reduced, regardless of whether or not they had been absent from the workplace: "Compared to before the COVID-19 outbreak, approximately what percentage of your earnings has been reduced during the period from late March 2020 until now?" For workers reporting income loss a follow-up question asked: "What are the main reasons for your income loss during the period from late March 2020 until now?" Respondents had four answer options to choose from: reduced working hours; reduced wages for the same hours of work; no option to work overtime; or no allowances or bonuses. For workers reporting income loss a third question was asked: "How did you cope with the income loss?" Here, several options were given: receiving cash assistance from the government or rations from the employer; borrowing from friends or family, or from microfinance institutions, or from other small lenders.

The descriptive statistics show that two out of three workers reported a wage reduction (65%); almost 5 per cent of the workers did not know if they had experienced a wage reduction. Workers who had been absent any time between March–August reported much more often a wage reduction than workers who were not absent (83% versus 2%, t=-42.22, p=0.000). The income losses were primarily due to workplace closure. Workplace closure also restricted the options for working overtime. To a minor extent, wage reduction was



Fig. 4 Percentage of wage reduction by reason for workplace absence, by period. Source: Wages and Work Survey Bangladesh 2020 (*N* for March–May = 1803, *N* for June–August = 1788)

due to reduced wages for the same number of hours, as this applied to less than 5 per cent of those reporting a wage reduction.

Workers reporting income loss were asked about the percentage of wage reduction. The workers who were not absent in March–May reported an average of almost zero percent reduction, but the workers who were not absent in June–August experienced an average wage reduction of 19 per cent (Fig. 4). Workers who were absent due to workplace closure reported on average a substantial wage reduction in March–May, but a much higher reduction, 31 percent and 50 percent respectively, during June–August. In both periods, workers whose workplace was not closed, but who were absent due to traffic or area restrictions, reported nearly similar wage reductions: 20 per cent and 18 per cent, respectively. Workers whose workplaces were not closed but who were absent due to sickness or the illness of family members reported a lower wage reduction during March–May than in June–August: 24 per cent and 43 per cent, respectively.

Employees who faced wage reductions were asked how they coped with the income loss (Fig. 5). Only a minority reported receiving cash assistance, food distribution or rations from the government, from non-governmental institutions or from the employer: 4, 4, 23 and 9 per cent, respectively, of the workers with a wage reduction. In total, 31 per cent of the workers with a reduced wage received this kind of support. Borrowing money was much more frequent. Borrowing from friends or family was reported by 65 per cent of the workers with a reduced wage, followed by borrowing from microfinance institutions or from other small lenders (21% and 13%, respectively). In total, 68 per cent of the workers with a wage reduction borrowed money; the majority from one source and the minority from two sources.

For the logistic regression model, we assumed increased likelihood for an absent employee to face a wage reduction and increased likelihood for an employee with a wage reduction to receive support, either as cash, food or rations, or borrowing from family, friends or lenders. The analyses controlled for characteristics of the workplace and the individual worker. The first panel in Table 6 shows that for the likelihood of facing a wage reduction due to workplace absenteeism, most workplace-related characteristics are significant, whereas individual characteristics are not, with the exception of education. Compared to the reference group of absent workers in construction, absent RMG workers more often reported a reduced wage, and absent workers in leather less often did so, too (OR



Fig. 5 Percentage of workers reporting how they coped with the income loss, multiple answers, only workers with a wage reduction. Source: Wages and Work Survey Bangladesh 2020, selection workers with a wage reduction (N=1141)

2.08; 95% CI: 1.06–4.08; p < 0.05; OR 0.41; 95% CI: 0.24–0.72; p < 0.01). Compared to those in firms with other ownership types, employees in firms with private single ownership reported wage reduction more often (OR 1.33; 95% CI: 0.96–1.83; p < 0.1). With every larger company size group, workers reported fewer wage reductions (OR 0.083; 95% CI: 0.75–0.92; p < 0.1). With every upward step in the wage decile, workers reported fewer wage reductions (OR 0.90; 95% CI:0.86–0.95; p < 0.1). Compared to the reference group of absent workers with none or only primary education, those with upper secondary education or more reported fewer wage reductions (OR 0.54; 95% CI:0.36–0.81; p < 0.01).

The second panel in Table 6 presents the odds ratios for receiving cash assistance, food distribution or rations in the case of a reduced wage, and the third panel does so for borrowing money when facing a wage reduction. The factors identifying which employees were likely to receive assistance or borrow money are more closely related to individual characteristics than to workplace characteristics. For every larger firm size group, workers reported borrowing less (OR 0.89; 95% CI: 0.81–0.97; p < 0.01). For every upward step in the wage decile, workers reported receiving less assistance and borrowing less (OR 0.94; 95% CI: 0.89–0.98; p < 0.05; resp. OR 0.93; 95% CI: 0.88–0.97; p < 0.01). Workers living with a partner reported borrowing more (OR 1.56; 95% CI: 1.10–2.23; p < 0.05). Workers reported more assistance for every extra household member (OR 1.20; 95% CI: 1.10–1.30; p < 0.01). Female employees reported borrowing less than male workers (OR 0.57; 95% CI: 0.41–0.79; p < 0.01).

Conclusion

This study draws conclusions from a face-to-face survey conducted in September–October 2020 in Bangladesh, immediately following the lockdowns in the context of the COVID-19 outbreak. For the survey 1,894 workers were interviewed in four low-paying sectors, notably tea estates, ready-made garment (RMG) factories, leather factories and construction

	Reduced wage, if absent	Received cash, if reduced wage	Borrowed, if reduced wage
Workplace characteristics			
Sector (ref. Construction)			
Sector RMG	$2.089^{**}(1.069-4.081)$	1.330 (0.738–2.395)	1.022 (0.542–1.930)
Sector Leather	0.417^{***} (0.241–0.721)	1.035 (0.595–1.798)	$0.652\ (0.366 - 1.162)$
Private single ownership	1.331*(0.966-1.834)	0.813 (0.609–1.086)	0.891 (0.664–1.196)
Firm size $(0 = 1-4,,10 = 5000 +)$	$0.835^{***}(0.758-0.920)$	0.990 (0.907–1.080)	0.891^{***} ($0.816-0.972$)
Semiskilled or skilled job	1.192(0.950-1.496)	1.052 (0.776–1.426)	0.652 (0.369–1.151)
Wage decile $(1 = lowest,, 10 = highest)$	0.907^{***} ($0.860-0.956$)	$0.941^{**}(0.898-0.986)$	0.931^{***} ($0.886-0.979$)
Individual characteristics			
Living with children	0.980(0.640 - 1.503)	0.880 (0.598–1.295)	0.946 (0.643–1.392)
Living with partner	1.049 (0.699 - 1.575)	1.223 (0.865–1.728)	1.569**(1.103-2.231)
People in household (1–6)	1.006(0.979 - 1.034)	1.203^{***} (1.107–1.308)	1.004(0.974 - 1.035)
Female	0.998 (0.719–1.383)	1.064(0.787 - 1.439)	0.575^{***} ($0.416-0.793$)
Age (ref. 29 years or less)			
30–39	0.797 (0.551–1.153)	0.996 (0.705–1.408)	1.252 (0.877–1.787)
40+	0.854 (0.461 - 1.585)	1.400(0.829-2.365)	1.145(0.638 - 2.054)
Education (ref. primary)			
Second stage of basic education	0.908 (0.634–1.302)	0.933 (0.698–1.247)	1.134 (0.839–1.532)
Upper secondary education	$0.545^{***}(0.367-0.810)$	0.833 (0.566–1.228)	0.977 (0.667–1.432)
Constant	17.075*** (9.350–31.182)	$0.319^{***} (0.181 - 0.561)$	9.073*** (4.868–16.913)
N	1385	1132	1132
LR chi2 (14)	161.94	52.82	76.91

sites. The questionnaire had an extensive module focusing on the pandemic's impact on jobs and workers.

The first research objective addressed worker's assessment of the hygiene measures in the workplace. The safe distance and space in seating and dining areas were assessed most positively, followed by the independent use of all work equipment, whereas the number of washrooms/toilets was judged least positive. Both workplace and individual characteristics were important in the assessments. In RMG and leather, the assessments were more positive than in tea and construction. Hygiene was assessed better in large businesses, compared with their smaller counterparts. Female employees and employees in a (semi-)skilled job, in a higher wage bracket, and with more education assessed their workplace as being less risky. Workers living with children in their households assessed their workplaces as being riskier, whereas the opposite was found for those living with a partner and for those living in large families. Absence during the March–May period did not affect the assessments, but workers absent during June–August 2020 were more negative in their assessments about protective measures, challenging the causality of this argument, as they may have been absent because of poor measures.

The second research objective focussed on the number of days absent from work. In RMG, leather and construction absenteeism was very high in April 2020, when the government ordered a lockdown. No absence was reported for tea gardens and estates, because social distancing was perceived to be easier achieved in tea plantations. In May, absence days remained high in construction, but they were halved in RMG and leather. Absence days were below 5 per cent in June, even though the number of infected cases in the country increased substantially that month. Absenteeism was mainly related to workplace characteristics and not to individual characteristics. Absence was more often reported by workers in the higher wage deciles, probably because they could afford to be absent.

The third research objective addressed the reasons for being absent. Three reasons stood out for absenteeism, namely workplace closure during the whole period during March-August, unavailability of transport and area-based government restrictions, which played a predominant role during March-May. For workers in RMG, traffic restrictions were an important reason for being absent, and so was the case for workers in larger firms and in the higher wage deciles. During June-August, individual characteristics became more important as workers with children at home reported more often workplace closure as a reason for absence, whereas for every extra household member this reason was reported less often.

The fourth research objective addressed income loss between March and August. Workers who had not been absent hardly reported income loss (2%), whereas workers who had been absent from the workplace to a large extent reported a wage reduction (83%). These workers saw their wages being reduced with one third up to half, particularly when working in smaller firms, and this was greater for those in the lower wage deciles. Only 4 per cent of workers with a reduced wage received cash assistance from the government or non-government bodies. Over 20% received food distribution by the government. Large house-holds had higher chances of receiving such assistance. Almost 70 per cent of the workers with a reduced wage borrowed money, predominantly from friends or family but also from small lenders. Borrowing happened independent of household size, but was related to earnings in the lower wage brackets and being male.

Based on the results of this study the long-term impact of the pandemic is likely to affect the workers and their jobs in three ways. First, workplaces will face losses due to the

reductions in production. Based on absence days observed in 2020 for RMG and leather, business is likely to drop by more than one month's turnover; for construction this can go up to two months' turnover. Some businesses will not survive. Second, the risk of infection exists in workplaces with poor hygiene measures, specifically in small firms and for low-skilled jobs. Hence, some infected workers will suffer from long-COVID health problems in the years to come. Third, the workers who had to borrow, will have to pay off their loans in the years to come. Income inequality in the country may increase because workers in smaller firms and in the lower wage deciles reported wage reduction more often.

The Government's role in managing COVID-19 reveals a split between lockdowns to prevent the spread of COVID-19 and reopening to continue business and employment. The Government's relief package for food distribution reached out to only one-fifth of the low-paid workers in our study. A comparison of the Bangladeshi policies to those of neighbouring countries, such as India and Myanmar, as well as nearby countries as Nepal, China, Pakistan and Sri Lanka, reveals that all mandated a lockdown, either full or partial, and all decided in favour of a relief package, according to the ACAPS Government Measures Dataset.² No data is available that indicates what share of the low-paid workers in these countries received support.

The future direction of the research specifically challenges follow-up studies to explore how the businesses and the workers in the four sectors will survive the huge impact of the pandemic in the long run. This will be particularly relevant if more waves of infections come back, which probably again be associated with workplace closures and transport restrictions.

This study has some limitations. First, as interviews were held on workplace premises, only employees who had returned to work after workplace closure were interviewed; no information has been gathered regarding those who did not return. Second, the study only covered four industry sectors; hence, no general conclusions can be drawn on how COVID-19 affected the overall economy and Bangladeshi society from a broader perspective.

Acknowledgements The contributions of many people to the project Decent Wages in Bangladesh is acknowledged. The contribution from Paulien Osse (management WageIndicator Foundation) was invaluable. The authors thank the anonymous referees and Editors of this journal.

Funding Funding was received by P. Osse for grant number NL0810131. Funder: Mondiaal FNV (https:// www.fnv.nl/mondiaal-fnv) in The Netherlands as part of its Trade Union Cooperation Program 2017 – 2020. The funder played neither a role in the design of the data collection nor in the manuscript preparation. Information about the research project can be found here: https://wageindicator.org/Wageindicatorfoundation/ projects/decent-wage-bangladesh-phase-1. The research report is available online in English and Bengali, see https://wageindicator.org/documents/publicationslist/publications-2020/bangladeshwagereportfinal.pdf. The appendix about the sampling and fieldwork of the survey is available online, see https://wageindicator. org/documents/publicationslist/publications-2021/bangladesh-wage-report_20201000-mk_20201201_appen dix-methodology-2.pdf

Data availability The dataset is downloadable here: https://zenodo.org/record/4304894#.YJFq27UzZPY

Declarations

Conflict of interest No conflicts of interest.

² See https://data.humdata.org/dataset/acaps-covid19-government-measures-dataset, last accessed 18 JUL 2022.

Ethical approval The Economics & Business Ethics Committee (University of Amsterdam) approved the project "COVID-19 and absence from work and coping strategies with income loss in Bangladesh" under nr 20210517010551.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

- Ahmed MS, Yunus FM (2020) Trend of COVID-19 spreads and status of household handwashing practice and its determinants in Bangladesh – situation analysis using national representative data. Int J Environ Health Res. https://doi.org/10.1080/09603123.2020.1817343
- Ahmed F, Islam A, Pakrashi D, Rahman T, Siddique A (2021) Determinants and dynamics of food security during COVID-19 in rural Bangladesh. Food Policy 101:102066. https://doi.org/10.1016/j.foodp ol.2021.102066
- Ali TO, Hassan M, Hossain N (2021) The moral and political economy of the pandemic in Bangladesh: Weak states and strong societies during Covid-19. World Dev 137:105216. https://doi.org/10.1016/j. worlddev.2020.105216
- Anner M (2020b) Squeezing workers' rights in global supply chains: purchasing practices in the Bangladesh garment export sector in comparative perspective. Rev Int Political Economy 27(2):320–347. https:// doi.org/10.1080/09692290.2019.1625426
- Anner M (2020a) Abandoned? The impact of Covid-19 on workers and businesses at the bottom of global garment supply chains. Research report March 27, 2020a. Penn state Center for Global Workers' Rights (CGWR).
- Biswas RK, Huq S, Afiaz A (2020) Relaxed lockdown in bangladesh during Covid-19: should economy outweigh health? Int J Health Policy Manag 9(11):488–490. https://doi.org/10.34172/ijhpm.2020.98
- Centre for Entrepreneurship Development (CED)/Brac University (BracU) (2020) Mapped in Bangladesh. Rapid Survey: Phase 2 Status of the Export Oriented RMG Factories in Bangladesh during COVID-19 Pandemic. Dhaka: CED/ BracU. http://ced.bracu.ac.bd/wp-content/uploads/2020/08/MiB-Rapid-Survey-Phase-2-Research-Brief.pdf.
- Egger D et al (2021) Falling living standards during the COVID-19 crisis: Quantitative evidence from nine developing countries. Sci Adv 7(6):1–12. https://doi.org/10.1126/sciadv.abe0997
- Fairwear (2020) Covid-19 impact and responses: Bangladesh. Updated 21 August, 2021. https://www.fairw ear.org/covid-19-dossier/worker-engagement-and-monitoring/country-specific-guidance/covid19bangladesh/ last accessed 6 January 2022.
- Genoni ME, Khan AI, Krishnan N, Palaniswamy N, Raza W (2020) Losing Livelihoods: The Labor Market Impacts of COVID-19 in Bangladesh. World Bank, Washington, DC
- Haven, B.J., Beyer, R.C.M., Dihel, N.C., Arshad, S. and Shahriar, S. (2021) Bangladesh development update, April 2021: moving forward - connectivity and logistics to strengthen competitiveness. World Bank, Dhaka. https://openknowledge.worldbank.org/handle/10986/35965.
- Hossain MI (2021) COVID-19 Impacts on employment and livelihood of marginal people in Bangladesh: lessons learned and way forward. South Asian Survey 28(1):57–71. https://doi.org/10.1177/09715 23121995072
- Idris I (2018) Modern slavery within the tea industry in Bangladesh. Brighton: Institute of Development Studies (IDS), K4D Knowledge, Evidence and Learning for Development (K4D). https://gsdrc.org/ publications/modern-slavery-within-the-tea-industry-in-bangladesh/.
- ILO (2021) COVID-19 and the world of work: Country policy responses: Bangladesh. Geneva: ILO. https:// www.ilo.org/global/topics/coronavirus/regional-country/country-responses/lang--en/index.htm.
- Karim MR, Islam MT, Talukder B (2020) COVID-19's impacts on migrant workers from Bangladesh: in search of policy intervention. World Dev 136:105123. https://doi.org/10.1016/j.worlddev.2020.105123

- Lenzen M, Li M, Malik A, Pomponi F, Sun Y-Y, Wiedmann T et al (2020) Global socioeconomic losses and environmental gains from the Coronavirus pandemic. PLoS ONE 15(7):e90972. https://doi.org/10. 1371/journal.pone.0235654
- Mahmud S (2009) On the contingent valuation of mortality risk reductions in developing Countries. Appl Econ 41(2):171–181. https://doi.org/10.1080/00036840600994252
- Moazzem KG and Ahmed T (2020) RMG sector during COVID pandemic. Corporate accountability on labour and human rights. Case of Financial Stimulus Package Funds. Dhaka: Centre for Policy Dialogue. https://cpd.org.bd/wp-content/uploads/2021/12/Corporate-Accountability-on-Labour-and-Human-Rights-amid-COVID-Pandemic.pdf.
- Mottaleb KA, Mainuddin M, Sonobe T (2020) COVID-19 induced economic loss and ensuring food security for vulnerable groups: Policy implications from Bangladesh. PLoS ONE. https://doi.org/10.1371/ journal.pone.0240709
- Parisotto A and Elsheikhi A (2020) COVID-19, jobs and the future of work in the LDCs: A (disheartening) preliminary account. Geneva: ILO, Working Paper 20.
- Raihan S (2020) Anatomy of the Stimulus Package in Bangladesh. Indian J Labour Econ 63:37–40. https:// doi.org/10.1007/s41027-020-00253-2
- Ramachandran S (2020) The COVID-19 Catastrophe in Bangladesh. The virus risks plunging Bangladesh into social, economic, and political turmoil — not to mention the public health crisis. The Diplomat, 29 April. https://thediplomat.com/2020/04/the-covid-19-catastrophe-in-bangladesh/.
- Shammi M, Tareq SM (2021) Environmental catastrophe of COVID-19: disposal and management of PPE in Bangladesh. Glob Soc Welf 8(1–4):133–136. https://doi.org/10.1007/s40609-020-00195-z
- The Daily Star (2020) Infected RMG Workers: 'Half Tested Positive after Factories Reopened'. May 8. https://www.thedailystar.net/backpage/news/infected600rmg-workers-half-tested-positive-after-factories-reopened-1900540.
- Tijdens KG, Ahmed A, Ceccon D, Mahmud M, Medas G, Osse P, Van Klaveren M (2020) Wages in Bangladesh, A study of Tea estates, Ready Made Garment, Leather, and Construction. WageIndicator Foundation, December (available in English and Bengali), Amsterdam
- UN Sustainable Development Group (2021) Social Protection for female tea garden workers and their families in the Sylhet Division. UN Sustainable Development Group. Story, 22 April 2021 https://unsdg.un. org/latest/stories/social-protection-female-tea-garden-workers-and-their-families-sylhet-division.
- UNIDO (2020) Impact assessment of covid-19 on Bangladesh's manufacturing firms, survey results May-June. Dhaka: United Nations Industrial Development Organization (UNIDO), Field Office in Bangladesh.
- World Bank (2021) Global Economic Prospects, January 2021. World Bank, Washington, D.C. https://doi. org/10.1596/978-1-4648-1612-3
- World Bank (2020) COVID-19 Monitoring Survey in Poor and Slum Areas of Dhaka and Chittagong. Bangladesh Food Security and Coping Strategies from Round 1 https://documents1.worldbank.org/curated/ en/719071628753399917/pdf/Bangladesh-Food-Security-and-Coping-Strategies-from-Round-1.pdf.
- World Health Organization (2020) WHO dashboard. https://covid19.who.int/region/searo/country/bd, accessed 22 December 2020.
- World Vision (2020) Rapid Impact Assessment: Bangladesh. London: World Vision, May https://www. wvi.org/sites/default/files/2020-06/Rapid%20Impact-%20Assessment%20Bangladesh%20FINAL.pdf, accessed 6 January 2022.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.