



Socioeconomic Impact of COVID-19 on Sudanese Households

December 2020

FOREWORD

Many studies and surveys were conducted to assess the effects of the COVID-19 pandemic, and many have shown negative effects, not only on health, but also on the economic, social, legal, environmental, and cultural aspects. In addition to causing a large number of injuries and deaths, the pandemic has also affected access to necessary services and goods, social relations, cultural aspects, revenues, income levels, commercial relations nationally, regionally and internationally, the labor market and employment, ongoing work contracts, psychological; stress and depression and environmental.

The Central Bureau of Statistics (CBS) as the main producer of official and reliable statistics in Sudan and the coordinator of the National Statistics System (NSS), responsible for organizing the statistical framework for the NSS to guide and inform policy formulation, planning and decision-making processes, conducted a High Frequency Survey in partnership with the World Bank to assess the impact of COVID-19 on Sudanese households and enterprises. The survey which is the sole exercise taking place in Sudan aims to inform policymaking, strategic planning, and government responses to contain the impact of the pandemic to its lower possible level.

This is the time to help monitor and mitigate the effects of the crisis by taking some measures and actions by the different sectors that support evidence-based response to the current crisis. The survey covered households in all states of Sudan in urban and rural areas, as well as small and medium enterprises in Khartoum state.

In conclusion, I hope that communication will continue with all sectors to provide all available data and statistics in support of their effort and work in full partnership to implement the planned statistical operations in Sudan.

Finally, I would like to thank the World Bank for working in fully partnership with CBS all through the survey process and also thanks to CBS technical staff and Stat Solution for carrying out this survey with professional and skills.

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ACKNOWLEDGMENTS

This report is based on data from the first round of the Sudan High Frequency Survey on COVID-19, collected during June 16–July 5, 2020. The panel survey is implemented jointly by the Central Bureau of Statistics (CBS) and the World Bank.

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Main findings from the report were presented at a virtual workshop held on Sunday December 1, 2020, co-chaired by the Director General of the Central Bureau of Statistics and the World Bank Country Manager. The workshop was attended by over 70 participants including from the Ministry of health, Ministry of Labor and Social Development, university researchers, NGOs, CSOs, development partners and donors. This report has reflected the workshop to the extent feasible.

The UK's (Foreign, Commonwealth and Development Office) financial contribution to the World Bank's Sudan poverty program facilitated implementation of this survey and is highly appreciated.

ABBREVIATIONS AND ACRONYMS

CATI	Computer Assisted Telephone Interviews
CBS	Central Bureau of Statistics
GDP	Gross Domestic Product
GoS	Government of Sudan
IMF	International Monetary Fund
MICS	Multiple Indicator Cluster Survey
NGO	Nongovernmental Organization
RME	Relative Margin of Error
MSME	Micro, Small and Medium Enterprises
WHO	World Health Organization

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EXECUTIVE SUMMARY

Sudan, like the rest of the world, has been experiencing the unprecedented social and economic impact of the COVID-19 pandemic. The Sudanese authorities attempted to act quickly in the face of the spreading virus. In March 2020 the Government established a high-level emergency committee to oversee the operations to deal with the COVID-19 pandemic. The Government imposed closure of schools, airports, ports, and land crossings; banned travel between states; and prohibited mass gatherings. A partial lockdown was imposed in Khartoum State in mid-March 2020. Restrictions on movement are expected to make the economic situation worse, with commodity prices soaring across the country. The rapid spread of COVID-19 in Sudan and the Government's containment measures could negatively affect household welfare including loss of employment and income, decreased access to basic commodities and services, and food security. The COVID-19 pandemic will likely worsen living conditions, particularly among the poor and vulnerable Sudanese.

The objective of the Sudan High Frequency Survey on COVID-19 is to quickly collect household (and firm-level) information, using phones, to monitor the crisis and assess the dynamics of the impacts of COVID-19 on households (and micro, small and medium enterprises [MSMEs]) in Sudan. The survey will help inform dialogue and mitigation measures. The survey focuses on the socioeconomic impacts of COVID-19 on households in urban and rural areas and provides near real-time data, supporting an evidence-based response to the crisis.

The survey is implemented jointly by the Central Bureau of Statistics (CBS) and the World Bank. As face-to-face surveys were not feasible, the survey was conducted using mobile phones and covers all 18 states of Sudan. The survey will monitor the impact of coronavirus on the daily lives of Sudanese who are being interviewed, with a panel of 4,032 households, representative at the national level. Round 1 of data collection was conducted during June 16–July 5, 2020 (about three months after the declaration of the outbreak in Sudan and lockdown).¹ This sample allows to draw statistically inferences of the Sudanese population at the national and rural/urban levels. Several questions were asked in Round 1 regarding different topics: knowledge of COVID-19 and social behavior, access to goods and services, food security, and jobs.

With regards to knowledge and social behavior, 98 percent of the respondents have heard about the COVID-19 pandemic. Sudanese have good knowledge of the measures to be followed to limit the spread of the virus. Most respondents report complying with these measures. For example, the handwashing preventive measure seems to be adopted by most respondents (89 percent). At the same time, a substantial share of respondents (one-third) neither avoid social distancing nor wear face masks in public. Most respondents (80 percent) worry about the probability of serious illness from COVID-19 and feel the threat to household finances due to COVID-19. A majority of the respondents (86 percent) seemed satisfied with the government's response to COVID-19.

In terms of consumer goods availability, the health crisis might have worsened the availability of certain basic commodities, particularly bread and cereals as well as milk and milk products. A substantial share of households was unable to buy main staple foods, but this shortage of the basic food products was more

¹ The first round of the survey was fielded towards the end of the lockdown period. For some outcomes, such as food consumption, the survey arguably captures the worst of the short-term/immediate impact of the crisis.

pronounced among households in urban areas households. The main reason for the inability to access food products seems to be increase in prices. This is to a large extent driven by product availability in the market, particularly in urban areas.

Price increases were felt by most households for all food staples; however, the urban population were disproportionately affected. The most vulnerable (particularly the urban poor) might be bearing a larger burden of the price increases. CPI data suggests that the COVID-19 pandemic may be playing a role in the price increases, although the size of its impact cannot be disentangled from price increases due to other reasons such as the macroeconomic instability and the recent locust infections that affected countries in East Africa.

The coverage rate and quality of social insurance is much lower for the most economically vulnerable people. This segment of the population would therefore be a priori more exposed to the impact of the health crisis. However, the difficulty in accessing health care during confinement affected almost all categories of the population in a uniform manner, regardless of whether they live in urban or rural areas. This was mainly due to the unavailability of medical personnel and also the limitation in movements. The health crisis caused severe disruptions in the education sector due to closure of schools, with immense impact on learning. While 50 percent of households had children who attended school before school closures, due to the COVID-19 lockdown only a small proportion (9 percent) were engaged in learning activities during school closures. This affected the rural areas more than urban areas.

Access to financial services was also severely restricted during the lockdown to minimize the spread of COVID-19. For every five households that needed financial services, one could not access a financial institution (ATM, bank, or mobile money). The reasons were mainly related to the measures imposed to contain the spread of the COVID-19 pandemic including the closure of banks, movement limitation, and fear of going out because of coronavirus.

Regarding jobs, economic activity has sharply reduced for most employees, and a decline in incomes has been observed in both rural and urban areas. Indeed, only a third of the respondents who declared working before the lockdown were able to continue their work because of COVID-19. With regard to employment sectors, people buying and selling goods have been the most affected (40 percent), followed by those in the services (13 percent) and freelancers (13 percent) and agriculture, hunting and fishing workers (10 percent). Among the employees who had to stop working, only 26 percent received their full salary while 47 percent received only part of their salary and 27 percent received no payment altogether. Family production units were also heavily affected by the crisis. About one-third of households were unable to perform normal farming activities during the outbreak. A substantial share of households experienced an income loss.

Most households have been affected by COVID-19, mostly through jobs and income losses, but also through rising food prices exacerbated by the health crisis. For example, in the 30 days prior to the interview, 46 percent of the respondents said they were worried about having enough food to eat; rural and female headed households, in particular, expressed this concern. There is evidence of modification in eating habits; for example, households reduced the quantities consumed or started consuming foods that they normally do not like.. This modification was more pronounced in urban areas. A substantial share of Sudanese households reported a decline in their international remittances and domestic remittances since the outbreak of the pandemic.

To cope with income losses and rising food prices, households adopt several coping strategies. These include cutting back on food, reducing consumption of goods, using savings for expenditure, resorting to on-credit purchases, and selling assets. However, a significant share of households (27 percent) did nothing, especially those in rural areas. Social assistance programs were almost non-existent as the share of respondents who report receiving any form of social assistance is very low (2 percent).

Potential policy responses based on these findings include the following. First, ensuring basic needs are met because of the soaring food prices. For example, targeting of aid programs to the neediest. Second, compensating people for loss of income. This could be done through social safety net programs. Third, avoiding further food price hikes and shortages by the government ensuring a well-functioning food market. Fourth, mitigating negative impacts on human capital by scaling up public health diagnostic and care capabilities in underserved areas, waiving medical bills, and continuing public awareness campaign on COVID-19, making efforts to bring all children back to school, particularly those from poor households who run the risk of dropping out (on-site meals for school children and take-home rations could encourage children to stay in school). Fifth, providing incentives to firms to minimize layoffs, including grants to (small) private sector firms, supporting active labor market programs to transition workers into training or new jobs; giving tax breaks/cuts and financial support. Sixth and perhaps most importantly, increase efforts to contain the spread of the virus, particularly given that the ongoing second wave of the pandemic is hitting Sudan much harder than the first wave. Ways to reduce the risk of the second wave in the country include intensifying the government's COVID-19 awareness/prevention campaign. Results from this survey would inform areas for improvement to minimize the spread of the virus (for example, promoting adoption of preventive measures, especially among males).

This panel survey is intended to gradually integrate the most relevant issues for Sudanese households as they progress toward deconfinement. The second round of data collection, the results of which will be published shortly, incorporates questions on access to water, electricity, and fuel and transportation services as well as questions on social tensions, crime, violence, and conflicts within communities.

Highlights

- Knowledge of the coronavirus disease is quasi-universal in Sudan as almost everyone (98 percent) reported to be aware of it.
- More than 70 percent of the respondents are well informed and adopt basic hygiene and social distancing measures (washing their hands and avoiding close contact). Females are significantly more likely to adopt COVID-19 preventive measures than males.
- 86 percent of the respondents seemed satisfied with the government's response to COVID-19. Among those unsatisfied with the government's actions, 58 percent attributed this to the lack of financial assistance from the government, 25 percent of them were unsatisfied because of the late response by the government, 13 percent said that there was a shortage of medical materials, and 5 percent attributed it to limited testing points. About 80 percent of the respondents were worried about the possibility that they or someone in their immediate family might become seriously ill from coronavirus.

- More than 20 percent of the households were unable to buy bread and cereals as well as milk and milk products in June/July 2020 as price increases were felt by most households. For all staples, households headed by females are more likely to be affected.
- About 46 percent of households reported being worried about having enough food to eat, and many modified their eating habits. The findings echo with the IPC estimate of 9.6 million (21 per cent of the population) acutely food insecure people in June-August 2020. Households headed by females are significantly more worried about not having enough food to eat (68 percent compared to 48 percent male headed households).
- About 26 percent of the respondents required medical assistance but were unable to access it due to the unavailability of medical personnel and movement limitations.
- Disruption of children's access to education is very high. Only 9 percent of the households with children who attended school before the outbreak of COVID-19 (i.e. half of all households) were engaged in learning activities during school closures due to COVID-19.
- About 20 percent of the households could not access a financial institution (ATM, bank, or mobile money) when needed due to banks' closure, movement limitation, and fear of contracting coronavirus.
- About 67 percent of the respondents who worked before the COVID-19 lockdown still had not returned to work by June/July 2020. This is mainly comprised of self-employed people or business owners. People buying and selling goods have been the most affected (40 percent). In addition, males are affected significantly more than females (four in five males compared to one in three females)
- About 86 percent of employees (22 percent of the working population) were able to continue working during confinement, either normally or remotely.
- Among the employees who had to stop working, only 26 percent received their full salary while 47 percent received only part of their salary and 27 percent received no payment altogether.
- About 38 percent of the households had experienced a decrease in their income by June/July 2020. In particular, for households that normally received remittances, 29 percent reported a decline in international remittances, and 24 percent experienced reductions in their domestic remittances.
- To cope with income losses, households reduced their food and non-food consumption, drew on their savings for expenditure, and resorted to on-credit purchases.
- Social assistance programs were non-existent, with only 2% of households reported receiving social assistance of any kind.

1. INTRODUCTION

The World Health Organization (WHO), on January 30, 2020, declared the coronavirus (COVID-19) outbreak a ‘public health emergency of international concern’. The Government established a high-level emergency committee to oversee the operations to deal with the COVID-19 pandemic. Sudanese authorities attempted to act quickly in the face of the spreading virus. With the confirmation of the first COVID-19 case in Sudan on March 13, the Government of Sudan (GoS) declared a ‘state of emergency’. On March 14, 2020, the Government announced closure of schools and prohibition of mass gatherings. Two days later, it closed airports, ports, and land crossings; banned travel between states; and required a one-month quarantine for incoming travelers. On March 25, 2020, authorities released 4,217 prisoners as a precautionary measure to reduce the risk of transmission in detention. A night curfew was imposed from 6:00 p.m. to 6:00 a.m., while the Khartoum State announced a partial lockdown starting April 18 for three weeks. People could move within their districts between 8:00 am and 1:00 pm (which was later further extended to 3:00 pm), with restrictions to cross bridges into the three districts of the state, Khartoum, Bahri, and Omdurman. In April 2020 the government launched a social assistance program to provide in cash and in-kind support to households in Khartoum State.

The lockdown was further extended until July 7. Starting July 8, 2020, Sudan began loosening the lockdown measures in and around the capital Khartoum after three months of tight restrictions. The airport began opening on July 12. According to the Multi-hazard Emergency Health Preparedness Plan prepared by the Government at the end of March 2020, and guided by the WHO, the financing needs to cope with COVID-19-related health care is about US\$230 million. The plan is currently underfunded, and the needs are imminent especially with the expected second wave and the recent deadly flooding in the country. Despite the significant efforts made by the Government and other key partners, progress has been relatively slow due to the lack of funding and the delayed procurement of required supplies. A revised draft federal budget for 2020 includes a major emergency allocation of resources for COVID-19-related expenditures.

Despite the containment measures, the COVID-19 transmission in Sudan evolved quickly. As of October 14, 2020, the GoS reported 13,691 confirmed cases and 836 deaths. After weeks of decline, the COVID-19 infection rate in Sudan started to rise at the beginning of November. The second wave has led to an increase in the number of cases and deaths to 16,052 and 1,197, respectively, as of November 25, 2020. Sudan has limited capacity to control the transmission and contain the COVID-19 pandemic and is among the most affected African countries in terms of absolute numbers of confirmed cases and death ratio. The crisis has brought to the fore systemic weaknesses in Sudan’s health system. The COVID-19 pandemic threatens to disrupt the provision of essential health care services due to barriers to the supply and demand for services. COVID-19 will lead to increased prices of basic foods, rising unemployment, slower growth, higher deficits, and falling exports. Restrictions on movement are making the economic situation worse, with commodity prices soaring across the country. According to the International Monetary Fund (IMF) projections, consumer prices are expected to increase by 81.3 percent in 2020. The World Bank projects gross domestic product (GDP) to decrease 4–10 percent in 2020 due to the combined impact of the economic crisis exacerbated by the social distancing measures to curb the spread of COVID-19. Slowing growth and COVID-19 policy responses will have a significant negative impact on government revenue. Slowing activity translates into lower levels of tax and other government revenue collection.

The potential impacts of the COVID-19 pandemic in Sudan are expected to be severe on Sudanese households' welfare, affecting households through three broad channels: (a) the income/employment channel, which includes both labor and non-labor income; (b) the price channel; and (c) the long-term human capital channel. The rapid spread of COVID-19 in Sudan and the Government's containment measures could negatively affect household welfare. The COVID-19 pandemic will likely worsen living conditions, particularly among the poor and vulnerable Sudanese.

There is an urgent need for timely data to help monitor and mitigate the impacts of the crisis. However, face-to-face surveys are not currently feasible in Sudan, as in many other countries directly affected by COVID-19, due to the risk of infection as well as mobility restrictions. Under these conditions, the use of phone surveys constitute a valuable alternative as they can collect data without visiting households. They can be implemented rapidly and at low cost, form a baseline for follow-up surveys, and adapted swiftly to changing circumstances. Thus, phone surveys are highly suited for rapid data collection especially in emergencies and under very rapidly changing conditions. While the literature is limited for developing countries, there is evidence that mobile phone surveys can be effective (see the World Bank Listening to Africa project, Dabalen et al. 2016, and Leo et al. 2015 for examples) and telephone surveys were successfully used in Sierra Leone and Liberia in 2015 to study the implications of the Ebola outbreaks there (Fu et al. 2015; Himelein and Kastelic 2015).

More than three-quarters of the Sudanese population live in a household with access to at least one cell phone. Data from the 2014 Multiple Indicator Cluster Survey (MICS) indicate that around 74 percent of households owned at least one cell phone in 2014 and that 77 percent of the population at the time could have been reached over the phone. In line with regional trends, the number of mobile cellular subscriptions has shown a strong, upward trend in recent years, implying that cell phone penetration has likely further increased since. It is also worth noting that only 7 out of 720 enumeration areas included in that survey had no household with a phone, suggesting that the geographic coverage rate is high.

The objective of the Sudan High Frequency Survey on COVID-19 is to quickly collect household (and firm-level) information, using phones, to monitor the crisis and assess the dynamics of the impacts of COVID-19 on households (and MSMEs) in Sudan.² This will help inform dialogue and mitigation measures. The survey focuses on the socioeconomic impacts of COVID-19 on households in urban and rural areas and provides near real-time data, supporting an evidence-based response to the crisis.

The report proceeds as follows. Following this introductory section, Section 2 describes the methodology and sampling design used for the Sudan High Frequency Survey. Section 3 presents the main findings of the survey, beginning with results about knowledge and behavior related to COVID-19 and then analyzing the impact of the pandemic on different aspects including on access to essential items/services, employment, income, food security, and general welfare. The section closes by reporting the coping strategies adopted by households. Section 4 provides a brief summary and potential policy responses.

² This report presents findings from the household survey, while a separate and complementary report is prepared for the micro, small and medium enterprises (MSMEs) component of the survey.

2. SURVEY METHODOLOGY AND SAMPLING DESIGN

Survey Description

The Sudan High Frequency Survey on COVID-19 is implemented using mobile phones (that is, live interviews from a call center) on a roughly monthly basis, making use of the existing lists of phone numbers across Sudan. These lists come from multiple sources (compiled from recent projects conducted across the country) and cover all 18 states of Sudan. While phone coverage is high in Sudan, the sample will not be able to reach households without telephones or households that are not included on these lists.

Given the restrictions imposed by COVID-19, the survey operation in Round 1 was not a 'typical' phone survey operation, and the survey firm had to innovate, especially at the beginning of the survey. First, interviewers had to work from their own home when the call centers could not be operated because of the restrictions of movement and assembly of people. Second, training of interviewers had to be carried out remotely (because of home-based work). Third, supervision and interviewer follow-up also had to be undertaken remotely.

The interviews for the selected household respondents were done through telephone, and data collection for the survey was done using tablets and the Kobo application (Computer Assisted Telephone Interviews, CATI). Details of the Kobo application are provided in the annex.

For each phone number selected for the study, the interviewer identified a target individual 18 years or older. This primary respondent would then answer individual-level questions as well as household-level questions. When necessary, the individual may pass the phone to the most knowledgeable household member to respond to specific household questions.

The questions revolve around the immediate socioeconomic impacts on households, including their labor market situation, as well as awareness of the virus and prevention measures undertaken by the household. The household survey covers questions on a range of topics/themes including, but not limited to, health condition, access to health facilities, access to other social services, prices of common food and non-food items (including imported goods), availability of common food and non-food items (including medicines), nutrition and food security, employment/labor, income, assets, coping strategies, remittances, subjective welfare, perceptions on the coronavirus outbreak, and the government's responses.

Sampling Design and Target Population

The sampling methodology adopted for the implementation of this survey is probabilistic. Each of the units in the targeted population of the study must have a nonzero and known probability of selection. The sample was stratified by rural/urban for all 18 states. This allows extrapolating the results of the sample to the target population and estimating the precision of the results obtained.³ However, the

³ The evaluation of data quality of any survey must not only be based on the reduction of sampling errors but also on reduction of non-sampling errors. In this sense, effort must be made at each of the multiple steps of conducting

implementation of this approach requires the availability of an adequate sampling frame containing all the units of the population and without omissions or duplications. In this survey, the sampling frame is provided by the phone lists. Considerable efforts were made to compile the frame using multiple lists of phone numbers collected during implementation of various projects/surveys during the last few years at the household level across the country. This reduces the chances of having more than one phone number per household. Moreover, during data collection, the interviewers double checked that only one number was called for selected each surveyed household. Therefore, selecting individual phone numbers is the same as selecting households. The resulting sampling frame covered all states of Sudan. Although it might have excluded areas for which phone numbers were not originally collected, it was the best frame one could have.

In Sudan, under the present federal system, the state is considered as a semiautonomous entity mandated to take care of the affairs of the citizen, provide governance, and be responsible for planning, policy formulation, and implementation of the annual program. Consequently, it was important that the sample covers all 18 states of the country. The sample is conceived to provide reliable estimates for the country (urban and rural) and to give statistically meaningful results at the national level. A total of 4,032 households were interviewed during the first round of data collection (conducted during June 16–July 5, 2020), with two-thirds of the sample in rural areas and one-third in urban areas (consistent with the rural/urban population distribution of Sudan). Selected households from each state include both rural and urban households, with the representation of each state in the final sample being proportional to the state's population relative to the overall population. Additional details of the sampling design are provided in the annex.

Representativeness and Monitoring

As noted earlier, the coronavirus outbreak makes it difficult to collect household survey data through face-to-face interviews. However, demand for collecting data on employment, access to health facilities, perception on the coronavirus outbreak, and the government's responses is rising rapidly. Given the difficulties of collecting data in person, the use of phones is an attractive option, but it has its own limitations. For example, phone surveys are likely to suffer from selective (non-random) undercoverage and nonresponse, which affect the representativeness of the results.

Undercoverage is a major concern for phone surveys implemented in developing countries. Individuals without mobile phones and those with mobile phones but living outside of areas with network coverage are not going to be captured in the survey, and these individuals are likely to have different characteristics to those who do have a phone and therefore are part of the sample.

The risk of nonresponse is also a concern for all surveys, and particularly for phone surveys. Efforts will be made to minimize this risk, including follow-up with respondents who fail to respond and keeping the interviews short (15–20 minutes) to reduce respondent fatigue. Reweighting techniques can be used to correct for this but will depend on observable characteristics. Weights are used to adjust for these error sources (Blumberg and Luke, 2007).

the survey, starting with the conception of the survey documents and methodological approaches and ending with data analyses and dissemination.

To understand potential non-coverage bias, in the annex (Table A1), we provide descriptive information on the characteristics of the sample population in comparison to much larger samples covered during the latest household surveys: 2014/15 National Household Budget and Poverty Survey (NHBPS) and the 2014 MICS (Multiple Indicator Cluster Survey). While the 2014 surveys do not reflect the current composition of the population (and also had their own non-coverage issues), the HFS has the same urban/rural distribution of the population of Sudan as the 2014 surveys and 2020 population projections. Also, the age groups distribution for the HFS is similar to that of both 2014 surveys. Highest level of educational attainment shows that 70 percent of respondents have completed high school or a higher education level. This number is not the average for all the population in Sudan and is substantially higher than the numbers reported in 2014 surveys. This means that there may be potential underestimation of the results if the non-coverage population belongs to the bottom of the income distribution.

But keeping the representativeness issue aside, by collecting data from the same households frequently, changes in employment, living conditions, access to health, exposure to the coronavirus outbreak, and policy interventions over time can be monitored. This information will be highly valuable for policy makers.

Compensation

Many people in Sudan are losing jobs and have lost their stream of income during the lockdown period to contain the spread of the COVID-19 pandemic. Supply of essential commodities has been hit hard. For this reason, household respondents are being offered compensation for their time. Each time a respondent successfully participates in a phone survey, SDG 50 (nearly US\$1.0, at the official exchange rate of SDG 55 per US\$1) airtime credit will be transferred directly to their phone. The respondents are not being paid for the survey; rather, this is a token of appreciation for their time on the survey. The calls do not cost the respondents any money, since they are called and do not pay for receiving calls. At the time when movement has been limited due to social distancing practices, the phone becomes even more important for people to communicate with others outside their households. In this case, transferring SDG 50 airtime to respondents would be useful to support to them.

The amount of compensation was communicated to the respondents at the beginning of Round 1. In Sudan, as with many other African countries, some mobile phone companies will cancel a SIM card (a phone number) if it is not used for a certain period or if no pre-paid airtime has been added to the phone for a certain period. Because the sample is random, it may include poor people who may not be able to purchase phone airtime on a regular basis. The airtime credit transferred to respondents after participating in each phone interview is mainly to compensate respondents for their participation in the survey thereby encouraging them to stay in the survey. However, an additional benefit of this incentive is that it will help prevent the cancellation of SIM cards for those who may not be able to maintain their phones. Giving incentives would help minimize the risk of attrition and nonresponse. The ability to make such credit transfers is common in many African countries. One option is to transfer credit from the call center using a project phone. Another way is for the mobile phone companies to be given a list of numbers to transfer airtime. Compensation is not given to MSME survey respondents.

3. MAIN FINDINGS OF THE SURVEY⁴

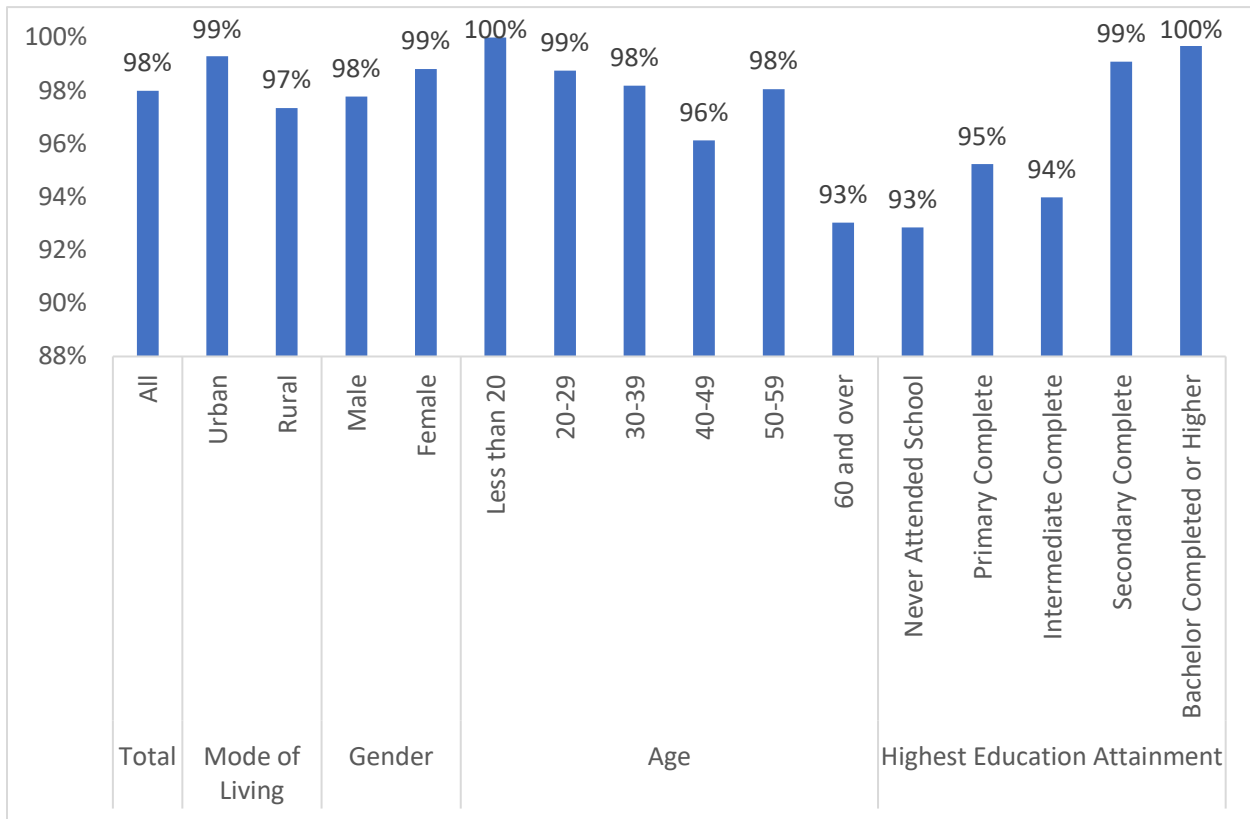
KNOWLEDGE AND BEHAVIOR REGARDING COVID-19

Since the start of the COVID-19 outbreak, there have been extensive attempts to better understand the spread of COVID-19 in Sudan. It is remarkable how much knowledge about a new virus has been gained in such a short time. In terms of knowledge and behavior, evidence has shown that disease-related literacy and attitudes of people in society play major roles in shaping their practices and controlling the disease during an outbreak so that prevention and control measures can be implemented rapidly. Summary statistics of the sample are provided in the annex.

Knowledge of the coronavirus disease is quasi-universal in Sudan as almost everyone (98 percent) reported to be aware of it. There are no statistically significant gender differences in awareness although female respondents are slightly more likely to have heard about COVID-19 compared to males (99 percent versus 98 percent, Figure 1). Similarly, awareness of the pandemic is not different among people living in urban and rural areas. With regard to age, nearly all age groups have heard about COVID-19. This is particularly true for those below 60 years of age. Even among those over 60 years, 93 percent have heard about COVID-19. Also, education levels do not matter for COVID-19 awareness, although those who have completed higher education studies are slightly more aware. The only group that stood out is people who have never attended school, with 93 percent reporting that they have heard about the virus.

⁴ It would have been informative to disaggregate the data by income groups. Information on household assets ownership was collected during round 1 to create wealth quintiles, but we cannot tell if the assets might have been affected by COVID-19 by the time of the survey. Thus, it does not make sense to breakdown round 1 data by wealth quintiles. However, based on round 1 assets information, subsequent rounds can be disaggregated by income groups using.

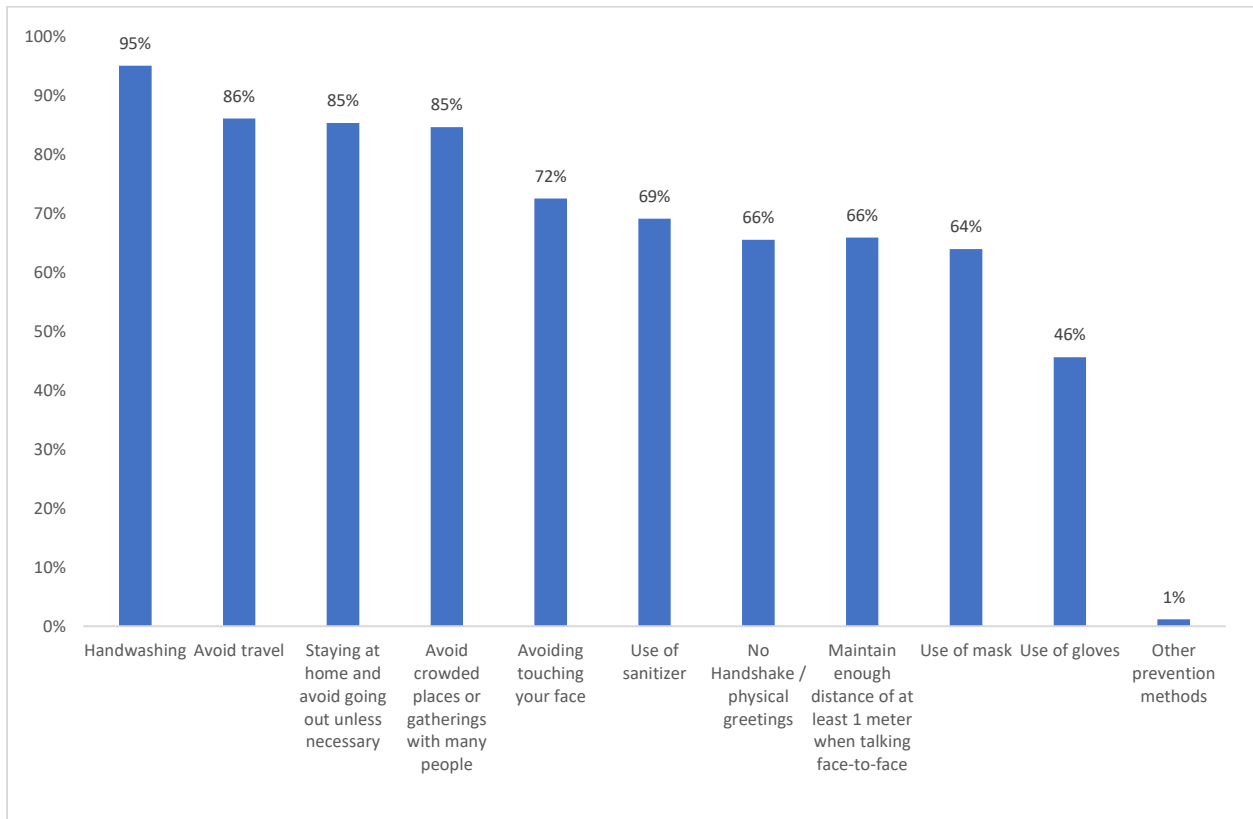
Figure 1: Percentage of respondents who have heard about COVID-19 in June/July 2020



Source: Sudan High Frequency Survey on COVID-19 (2020)

Most respondents know preventive measures for COVID-19, but there are significant differences in knowledge across preventive measures. Handwashing is the most known measure to prevent COVID-19 with 95 percent stating that they know about this (Figure 2). Over two-thirds of the respondents also know that avoiding travel, staying home and going out only when necessary, avoiding gatherings/crowds, avoiding touching their face, and using sanitizer are measures to prevent the spread of COVID-19. About two-thirds of the respondents know that avoiding handshakes/physical greetings, social distancing of at least 1 meter, and use of face masks are also COVID-19 preventive measures. Use of gloves is the least known measure, with less than half of the respondents seeming to know this measure.

Figure 2: Percentage of respondents who know preventive measures for COVID-19



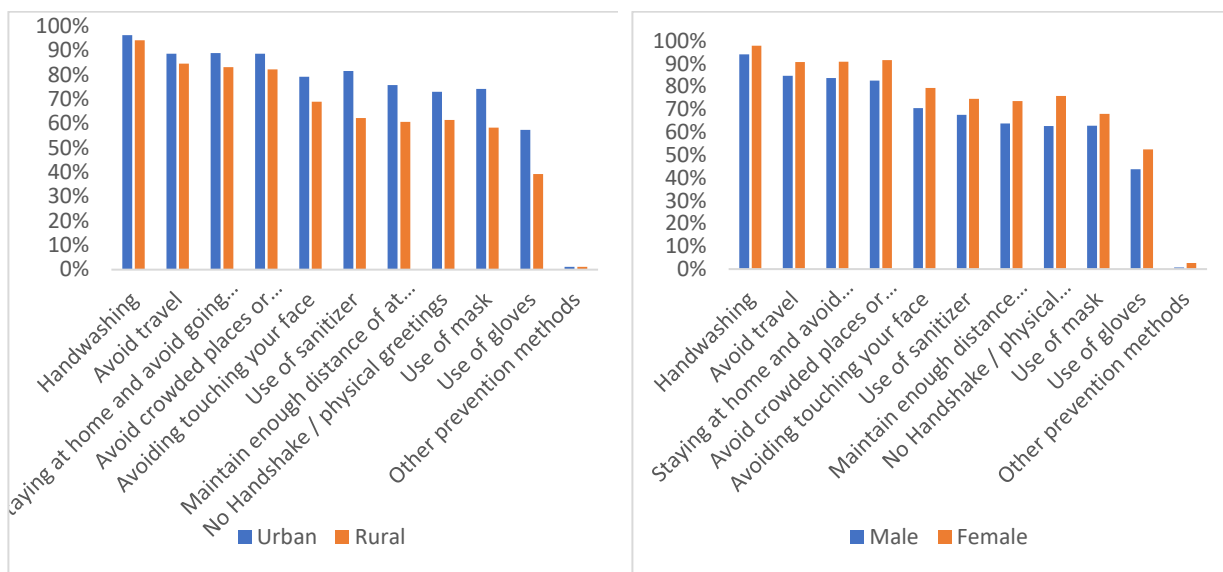
Source: Sudan High Frequency Survey on COVID-19 (2020)

There are stark differences in knowledge of COVID-19 preventive measures across location and gender. Respondents in urban areas are no more aware of the handwashing measure than their rural counterparts. However, for all other preventive measures, people in urban areas seem to be more aware than the rural population (Figure 3). In terms of the gender of the respondents, females are more aware than males about all COVID-19 preventive measures.

Figure 3: Percentage of respondents who know preventive measures for COVID-19, by location and gender

Panel (i): By location

Panel (ii): By gender

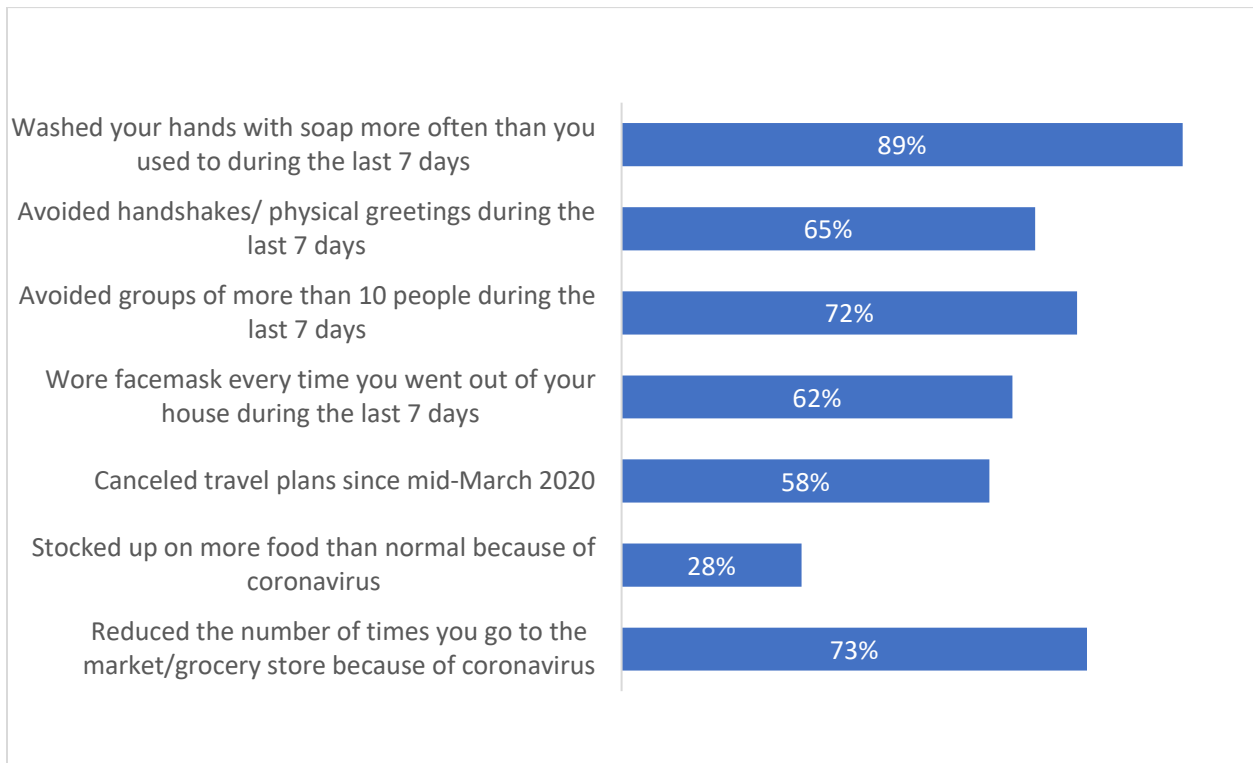


Source: Sudan High Frequency Survey on COVID-19 (2020)

The results show that while nearly everyone knows COVID-19 preventive measures a significant share of the respondents is not applying those measures, particularly males. The handwashing preventive measure seems to be adopted by most respondents (89 percent) (Figure 4). Just over 70 percent adopted social distancing preventive measures, avoiding gatherings of more than 10 people and reducing times of going to markets. Two-thirds of the respondents practiced avoiding handshakes or physical greetings. In terms of wearing face masks in public, two-thirds of respondents adopted this measure, which is consistent with the finding that two-thirds know about the use of face masks when outside their home. The data also reveal that females are more likely to adopt preventive measures than males. This is true for every single preventive measure, and the gender differences are statistically significant at the 95 percent confidence interval. Also, the urban population is significantly more likely to apply preventive measures compared to people living in rural areas. It is also worthy to note that 116 respondents (about 3 percent of the sample) stated that they are not applying any of the COVID-19 preventive measures, and almost all of them are males, except for three female respondents.

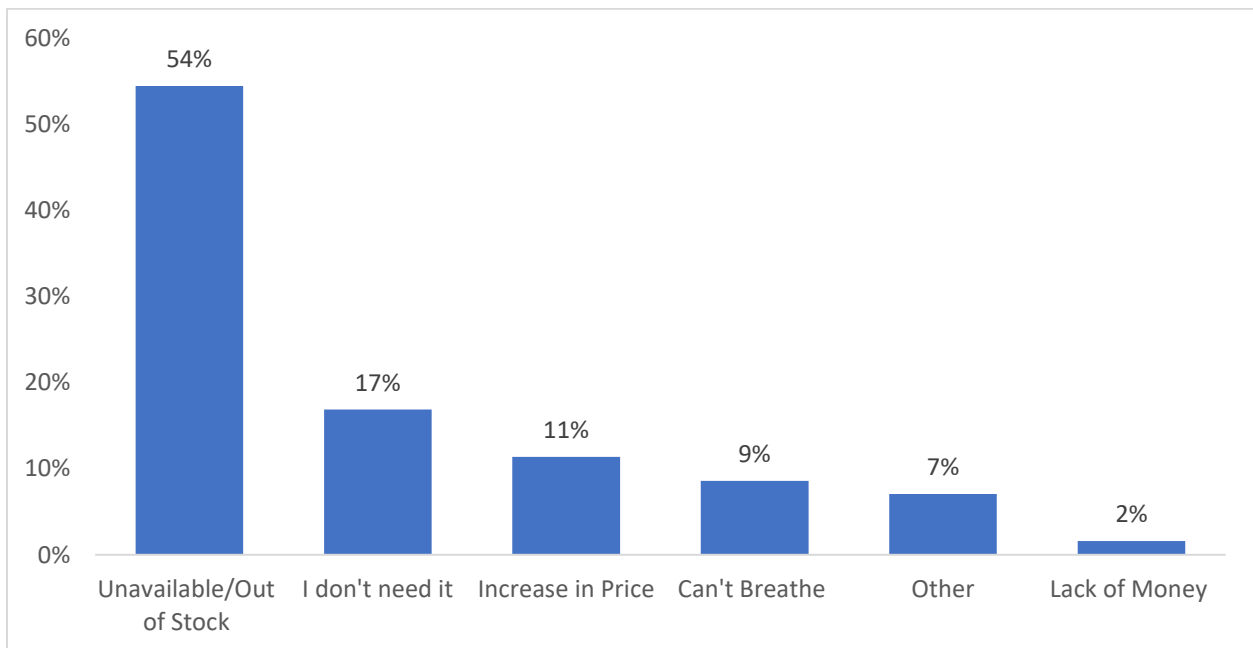
For those who do not wear face masks in public, half of them blame this behavior on unavailability of masks in the markets (or out of stock). The other main reasons for not wearing face masks when outside their homes include no need for face masks (17 percent), increase in price (11 percent), and breathing difficulty (9 percent) (Figure 5).

Figure 4: Percentage of respondents who adopted different preventive measures



Source: Sudan High Frequency Survey on COVID-19 (2020)

Figure 5: Reasons for not wearing face masks in public

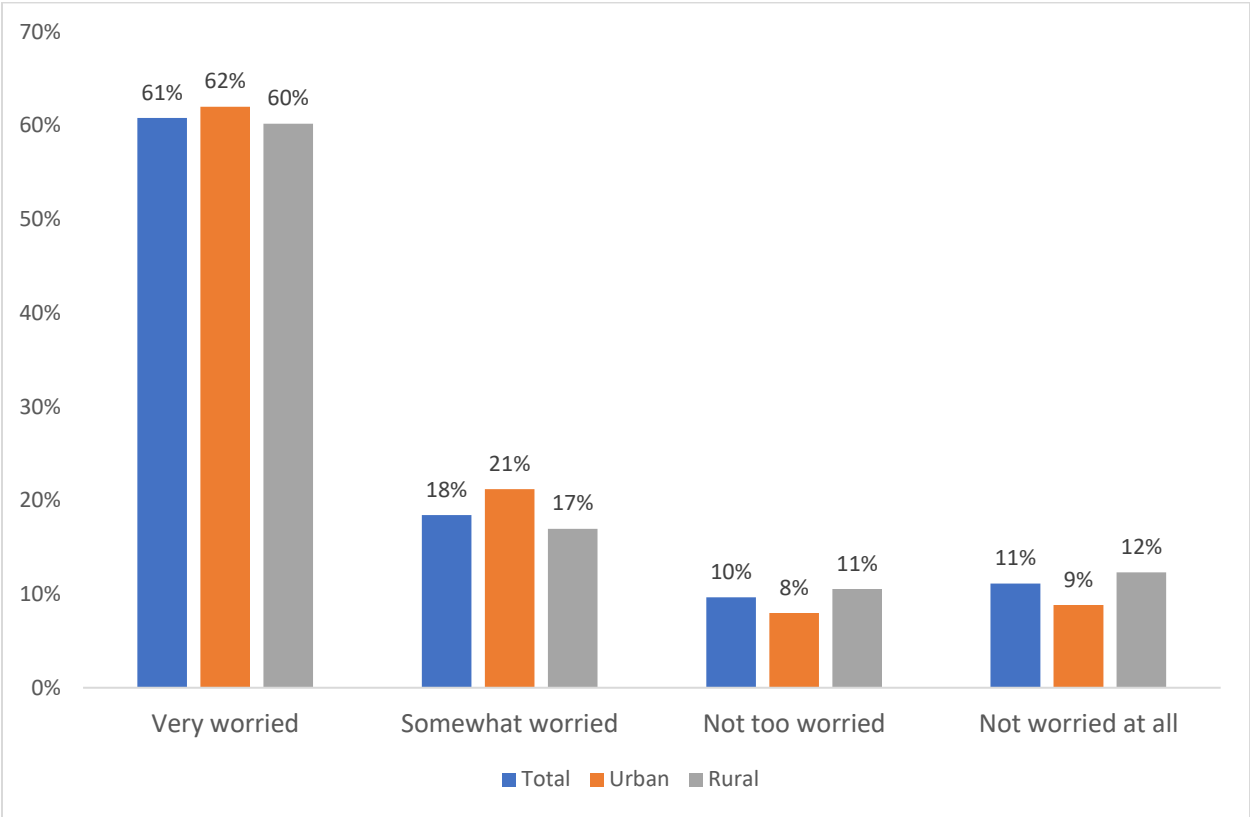


Source: Sudan High Frequency Survey on COVID-19 (2020)

Young Sudanese are less likely to apply COVID-19 preventive measures. A substantial share of the population Sudanese population is young (60 percent is below the age of 25). There is evidence that young people have more risky behaviors (for example, Balocchini et al., 2013; Barbalat et al., 2010; Taylor et al., 2013). In this context, it is interesting to understand your results from this perspective, which may inform policymakers. The results confirm the literature that young people tend to engage to risky behaviors (Annex Figure A1). Respondents less than 30 years old (particularly, those below 20) are generally less likely (compared to older people) to apply COVID-19 preventive measures: handwashing, , reducing the number of times they go to the market/grocery store because of coronavirus.

Most respondents worry about the probability of serious illness from COVID-19 and feel the threat to household finances due to the COVID-19 outbreak. Of the respondents, about 80 percent were worried (61 percent very worried and 18 percent somewhat worried) about the possibility that they or someone in their immediate family might become seriously ill from coronavirus (Figure 6). The urban population seems slightly more worried than people living in rural areas. Of the respondents, 59 percent reported the pandemic as a substantial threat and 33 percent as a moderate threat to their household finances.

Figure 6: Feeling about the probability of serious illness from COVID-19 (percentage of respondents)



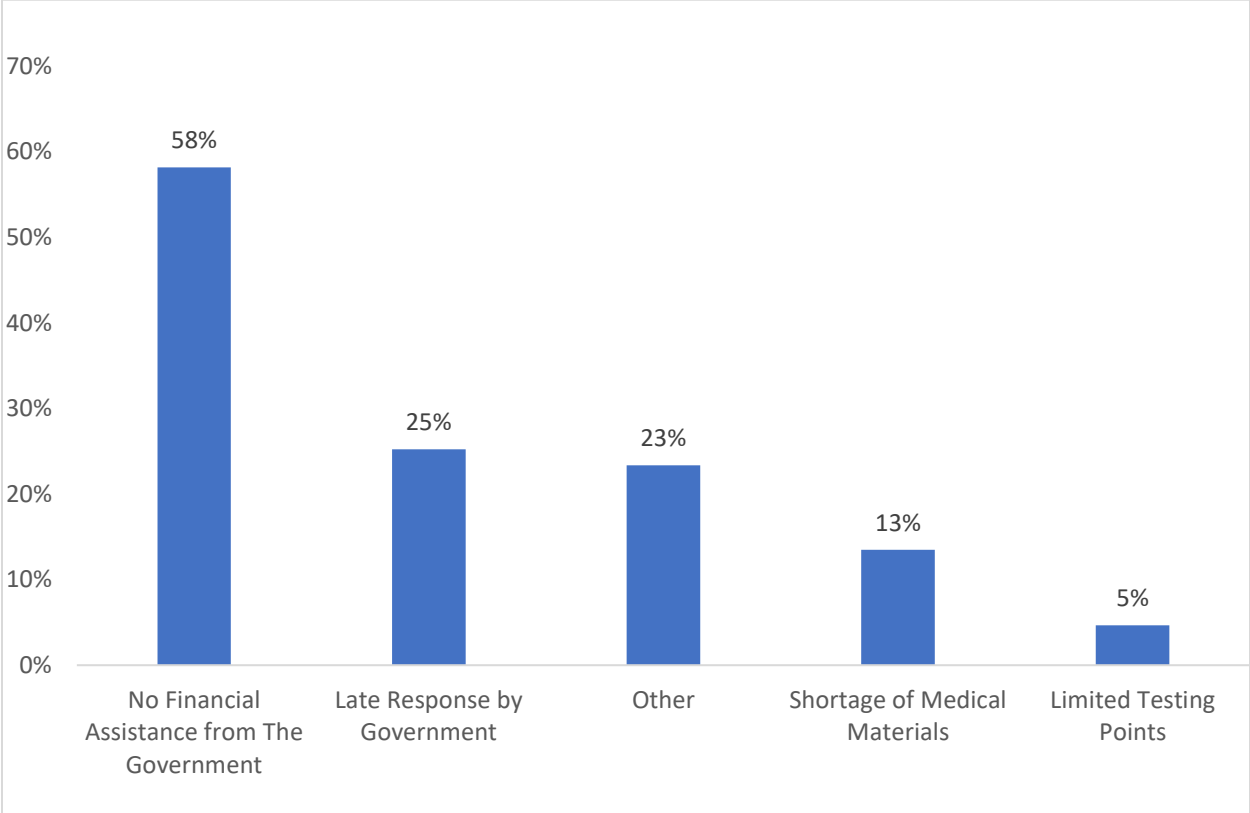
Source: Sudan High Frequency Survey on COVID-19 (2020)

The majority of the respondents (87 percent) are aware of the government-imposed curfew/lockdown across the country, but many seem unaware of other government/local authorities’ actions for COVID-19. Less than half of the respondents (43 percent) are aware of the advice to stay at home, 21 percent are aware of schools’ closure measure, and only 11 percent are aware of travel restrictions.

82 percent of the respondents received information about self-isolation and social distancing to prevent the spread of the virus. There is variation between channels of information. The most common channel is television with 60 percent of respondents having heard about COVID-19 through TV; followed by radio, social media, and phone (37 percent, 33 percent, and 33 percent, respectively). Less than 2 percent of the respondents heard about COVID-19 through newspapers. The share of the respondents receiving information from these channels is significantly higher among the urban population compared to those living in rural areas (statistically significant at the 5 percent level). This suggests an important role that community leaders in rural areas can play in the fight against the spread of COVID-19 virus, by using other channels to reach the people.

There is general satisfaction with government actions to curb the spread of coronavirus. The data show that 86 percent of the respondents are satisfied with the government’s response to COVID-19. Among those who are not satisfied with the government’s actions, 58 percent attributed this to the lack of financial assistance from the government, 25 percent of them were not satisfied because of the late response by the government, 13 percent said that there is a shortage of medical materials, and 5 percent attributed it to limited testing points (Figure 7).

Figure 7: Reasons for non-satisfaction with government actions

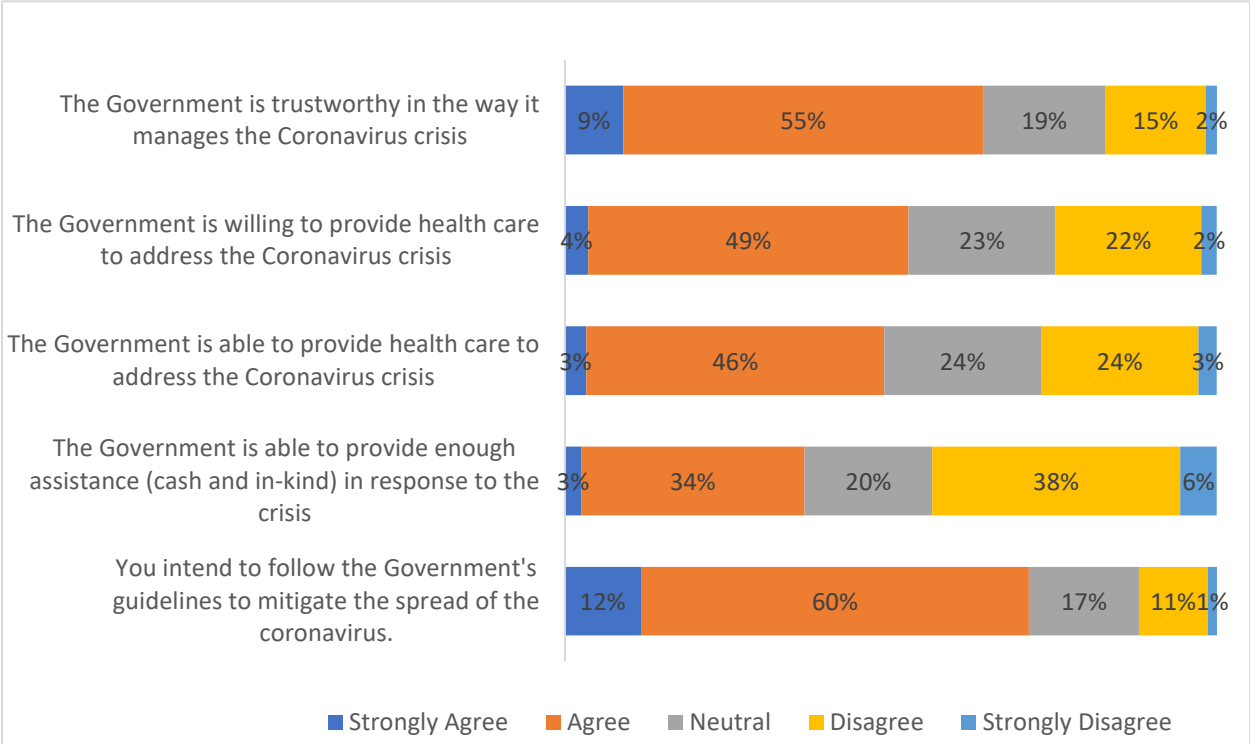


Source: Sudan High Frequency Survey on COVID-19 (2020)

About two-thirds of the respondents trust the government in the way it manages the COVID-19 crisis, and most respondents intend to follow the government’s guidelines to mitigate the spread of the coronavirus. Of the respondents, 64 percent agree or strongly agree that the government is trustworthy in the way it manages the coronavirus crisis (Figure 8). Of the respondents, 53 percent agree that the

government is willing to provide health care to address the coronavirus crisis, while 49 percent think that the government is able to provide such health care. Only 37 percent of the respondents believe that the government is able to provide assistance (cash and in-kind) in response to the crisis. Of the respondents, 72 percent agree or strongly agree that they intend to follow the government’s guidelines to mitigate the spread of the coronavirus.

Figure 8: Agreement with government actions



Source: Sudan High Frequency Survey on COVID-19 (2020)

IMPACT OF COVID-19 ON HOUSEHOLDS

We adopt a simple framework describing the main transmission channels from aggregate shocks to household and individual incomes.

1. Direct effects on consumption due to disruptions in the functioning of markets as a result of decline in international trade, FDI and domestic economic activity that could lead to prices increases and/or rationing of basic consumption goods, including food (and production inputs).
2. Disruptions to service delivery, particularly health and education services.
3. Impact on labor income due to decline in aggregate demand, supply disruptions and the associated decrease in employment and/or the returns to productive activities. Lost earnings could also result from the direct health impact of the outbreak on breadwinners.
4. Impact on non-labor income due to a decline in international (and domestic) remittances and potentially in private transfers.

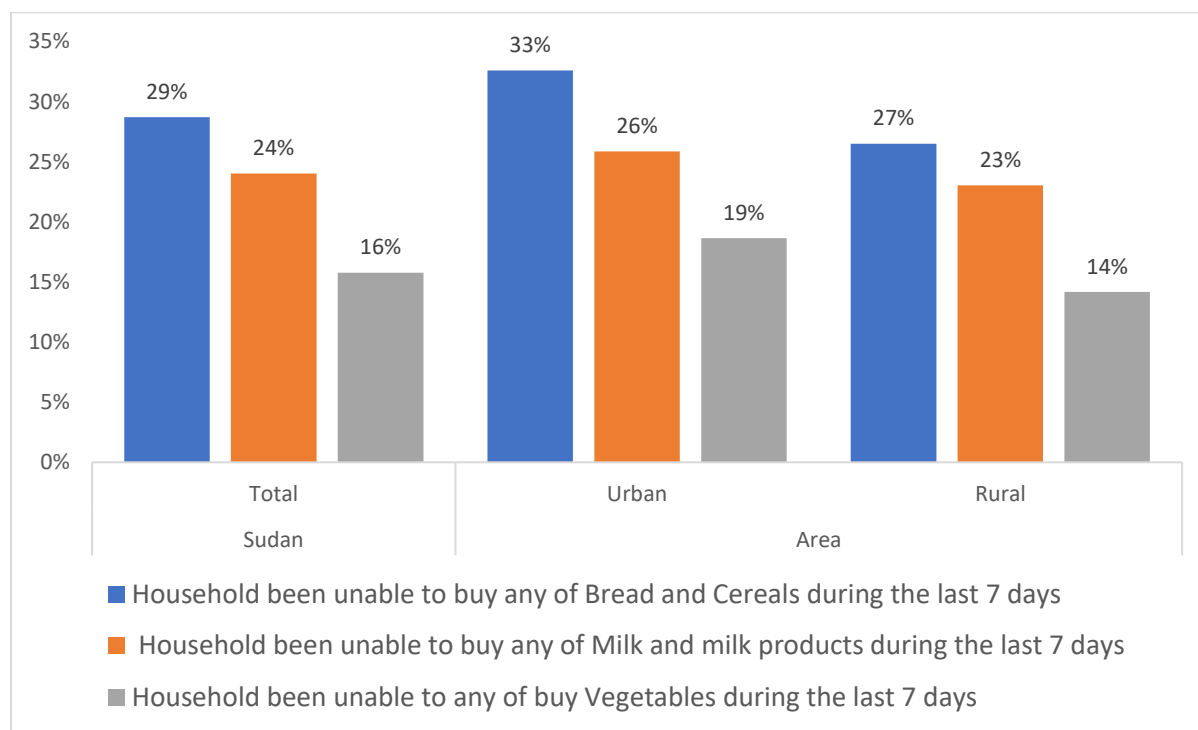
Impacts are likely to vary across different groups of the population due to differences in their demographic and socio-economic characteristics (e.g. income and education levels, sector of occupation, and geographic location) and their ability to cope with shocks through private means.

1. Direct effects on consumption

Access to Staple Foods

A substantial share of households was unable to buy staple foods, particularly those in urban areas households. Of the households, 29 percent were unable to buy bread and cereals (dura, millet, wheat, sorghum, rice, bread, pasta, flour, kisra, and so on) during the seven days before the interview (Figure 9). During the same period, 24 percent were unable to buy milk and milk products (milk, milk powder, cheese, yoghurt, and so on) and 16 percent were unable to buy vegetables (cucumber, tomato, onions, potato, and so on). The inability to buy all main staple foods was observed more among households in urban areas. For all staple foods, the most reported reason for the inability to access food products seems to be increase in prices, stated by at least half of the affected respondents (the second main reason for the inaccessibility of the food products is because the items were unavailable or out of stock).

Figure 9: Percentage of households unable to access main staple foods in the seven days prior to the interview



Source: Sudan High Frequency Survey on COVID-19 (2020)

Price increases were felt by most households; however, the urban population were disproportionately affected. This is true for all food staples. For example, while 58 percent of urban households saw an increase in the price of bread and cereals, 47 percent of rural households reported this experience (Table 1). Similarly, while 80 percent of urban households experienced an increase in the price of milk and milk

products, the corresponding number for rural households was 64 percent. The implication of the changes in food prices might be different across income groups, depending on the relative shares of these changes in households' budgets. This suggests that the most vulnerable (particularly the urban poor) might be bearing a larger burden of the price increases.

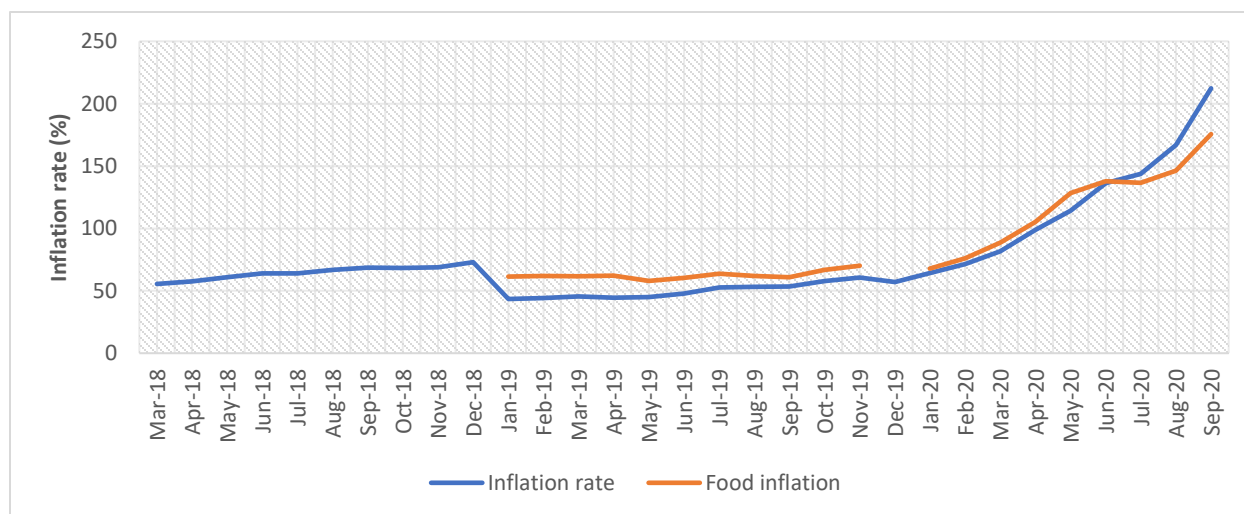
Table 1: Percentage of households that reported an increase in prices, by food type

	Total	Urban	Rural
Bread and Cereals	51	58	47
Milk and milk products	70	80	64
Vegetables	67	80	58

Source: Sudan High Frequency Survey on COVID-19 (2020)

These findings should be put into context in light of the possible impacts of COVID-19 and related lockdown measures on prices and product availability. Figure 10 shows that the food consumer price index (CPI) has indeed increased substantially between March 2020 and September 2020. While, the period between March and September in both 2018 and 2019 saw slight spikes pointing to cyclical variations, there is no doubt that the spike in 2020 is much more prominent indicating that the COVID-19 pandemic may be playing a role. Product prices were already experiencing a rising trend before the COVID-19 outbreak, partly due to the ongoing economic crisis in Sudan. However, the month-to-month percentage change in CPI was substantially lower in the first months of 2020 (i.e. before the declaration of COVID-19 outbreak) compared to the following months. Therefore, while it is undoubtable that COVID-19 have worsened the situation, the data do not allow to disentangle the increase in prices due to COVID-19. Moreover, the spike of the prices of food items may also be partly attributed to locust infections that ravaged East African countries. Further rounds of data collection may provide more evidence in this respect.

Figure 10: Change in monthly inflation rate between March 2018 – September 2020.

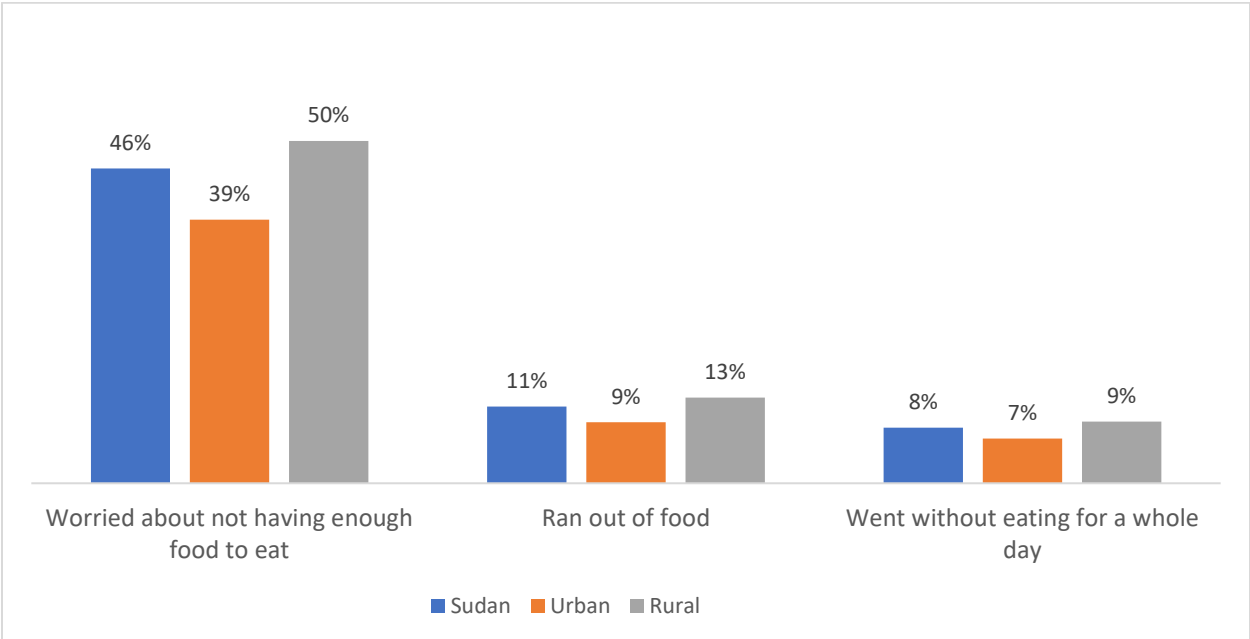


Source: CPI data from the Central Bureau of Statistics

Food Security

There are concerns about food security, particularly among rural households and households headed by females. Of the households, 46 percent were worried about not having enough food to eat because of lack of money or other resources in the 30 days prior to the interview (Figure 11). This phenomenon is more pronounced in rural areas, with half of the rural respondents concerned about their food access. There are also gender differences in food security concerns: female headed households are significantly more worried about not having enough food to eat (68 percent compared to 48 percent male headed households). Of the households, 11 percent ran out of food in the 30 days prior to the interview because of a lack of money or other resources as reported in June/July 2020. A similar proportion was observed in both rural and urban areas. Of the households, 8 percent have an adult that went without eating for a whole day in the 30 days prior to the interview because of a lack of money or other resources. A similar proportion of households reported this event in both rural and urban areas. There is evidence of modification in eating habits; for example, households reduced the quantities consumed or started consuming foods that they normally do not like and skipped meals. This modification was more pronounced in urban areas.

Figure 11: Food access during the 30 days prior to the interview



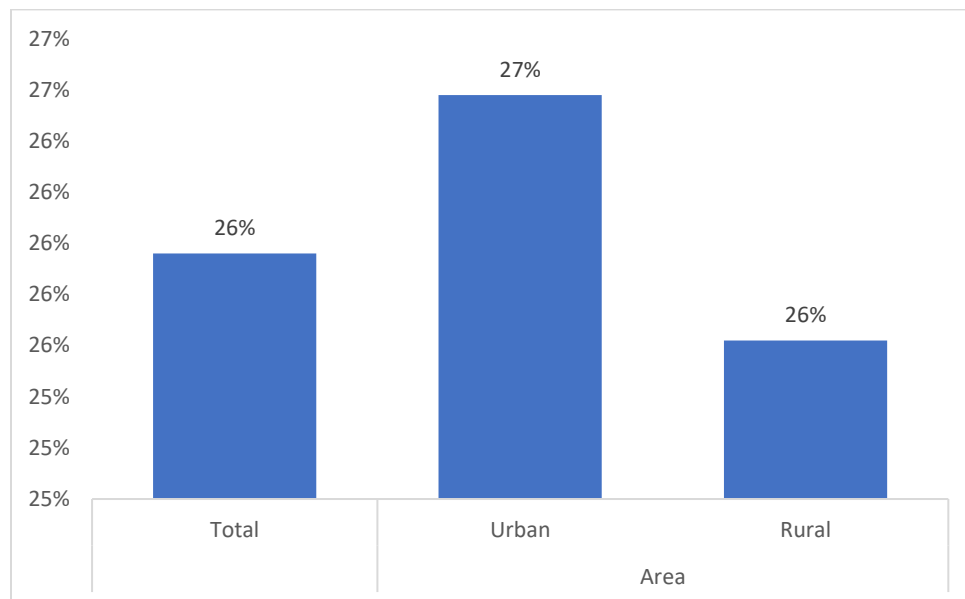
Source: Sudan High Frequency Survey on COVID-19 (2020)

Access to Medicine

Of the households that needed medicine, 26 percent were unable to access it. This challenge seems to be slightly more common in urban areas where 27 percent of the households in need could not access medicine compared to 26 percent in rural areas (Figure 12). The main reason was because the medicine was unavailable or out of stock (reported by 61 percent of the affected households), followed by increase in price (stated by 19 percent of the affected households). Of the households, 12 percent were unable to

access medicine because local pharmacies were closed. There are no statistically significant gender differences in access to medicine.

Figure 12: Percentage of households unable to access medicine when needed



Source: Sudan High Frequency Survey on COVID-19 (2020)

2. Disruptions to service delivery

Access to Health Care

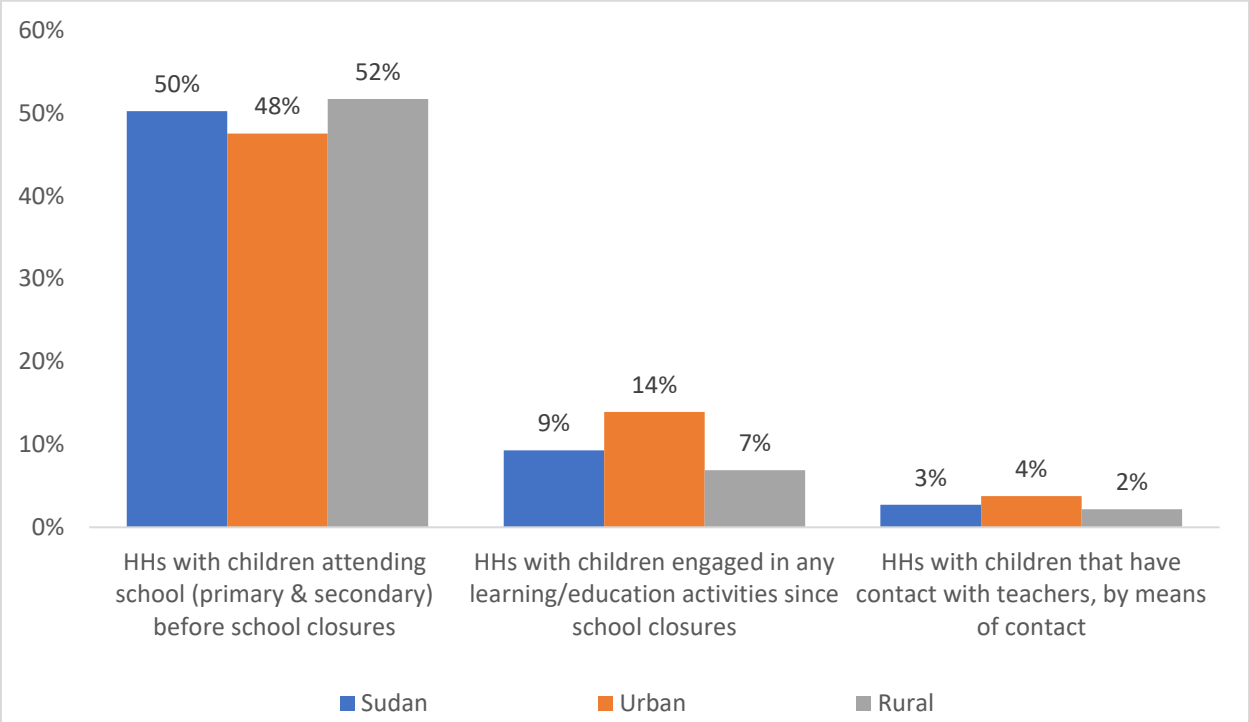
27 percent of the households that needed medical assistance (health care) were unable to access it. This is true regardless of whether the household is located in an urban area or a rural area. The lack of access to health care is mainly due to the unavailability of medical personnel, reported by 41 percent respondents (with urban households twice more likely to face this problem than rural households). Of the respondents, 33 percent could not get medical assistance because of lack of money. The other reasons for the inability to access medical assistance were movement limitations due to the lockdown (7 percent) and people were afraid of going and contracting the virus (6 percent).

Access to Education

Only 9 percent of the households with children who attended school before the outbreak of COVID-19 (i.e. half of the sample) were engaged in learning activities during school closures due to COVID-19 (Figure 13). Twice as many children were engaged in urban areas (14 percent) compared to rural areas (7 percent). Given that 50 percent of the households had children who attended school before school closures due to the COVID-19 lockdown, it means that most school children were not engaged in any learning activities during the lockdown. Among households with children engaged in different types of education/remote learning activities, 78 percent were mainly completing assignments provided by the teacher while 10 percent had sessions or meetings with the teacher/tutor, 4 percent watched TV

educational programs, and 3 percent used mobile learning applications. This finding is consistent with recent literature on the impact of COVID-19 on learning due to school closures (Azevedo et al., 2020).

Figure 13: Access to education/learning activities during school closures (percentage of households)

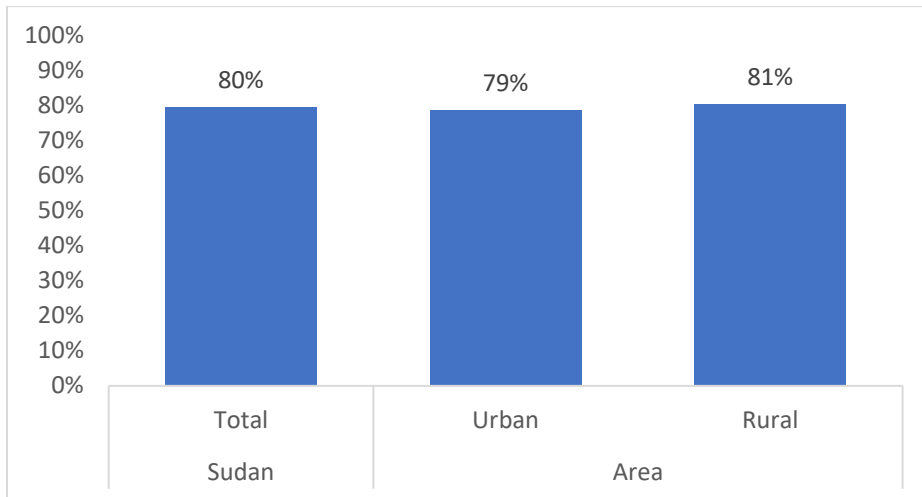


Source: Sudan High Frequency Survey on COVID-19 (2020).
 Note: HH means Household.

Access to Financial Services

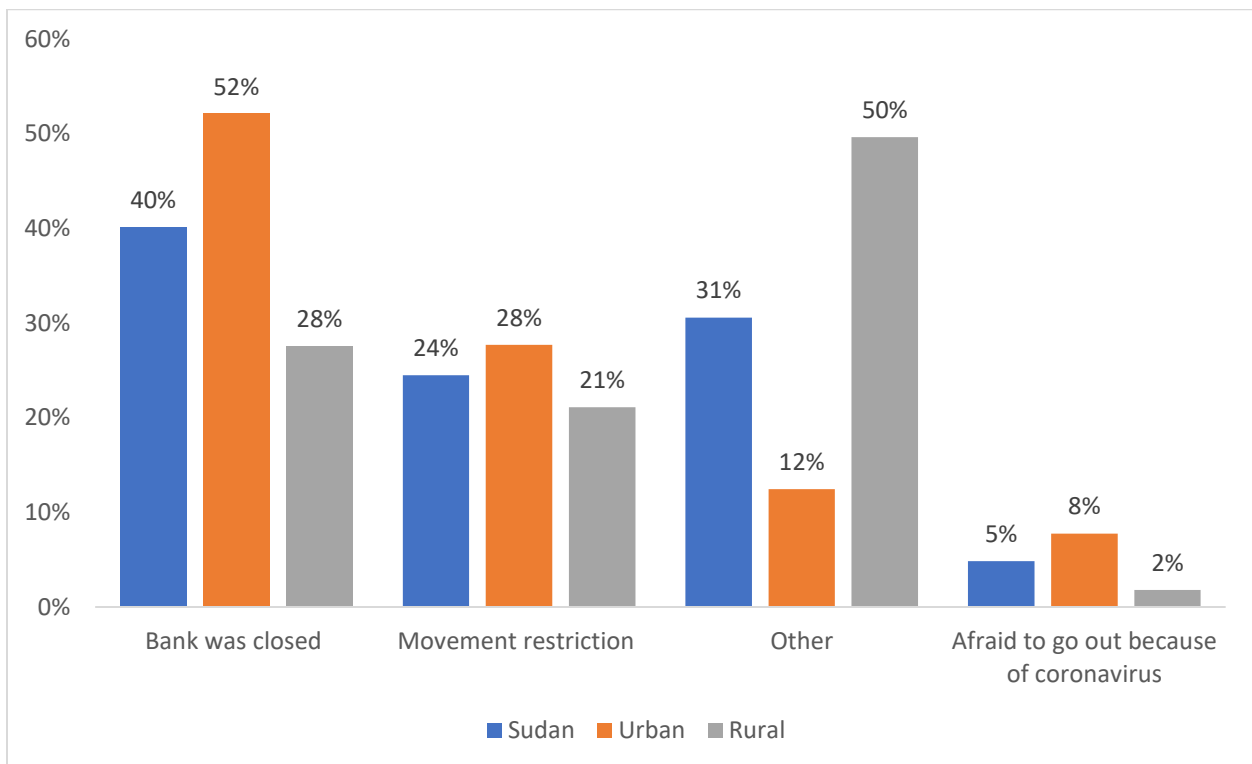
One-fifth (20 percent) of the households could not access a financial institution (ATM, bank, or mobile money) when needed in June/July 2020 (Figure 14). The number was slightly higher in urban areas. The reasons for non-accessibility were mainly related to the measures imposed to contain the spread of the COVID-19 pandemic. Of the households, 40 percent cited banks’ closure as the reason for their unsuccessful attempt to access financial services, while movement limitation and fear of going out because of coronavirus were cited by 24 percent and 5 percent households, respectively (Figure 15).

Figure 14: Percentage of households able to access financial services when needed



Source: Sudan High Frequency Survey on COVID-19 (2020)

Figure 15: Reasons for not accessing financial services when needed



Source: Sudan High Frequency Survey on COVID-19 (2020)

3. Impact on labor income

Economic Activity - Employment

Two-thirds (67 percent) of respondents who were working before the lockdown still had not returned to work by June/July 2020 (Figure 16). This number is highly driven by self-employed people or business owners because most employees and farmers continued their work as noted below. The cessation of economic activities was experienced equally in rural and urban areas. Among respondents who were working before the lockdown, about four in five males and one in three females stopped working after the COVID-19 outbreak. Among those reporting a work stoppage, over 80 percent cited reasons directly or indirectly linked to COVID-19. More specifically, 66 percent had stopped working either because the business/government closed due to coronavirus restrictions and 17 percent stopped because of the curfew imposed to contain the spread of COVID-19 (Figure 17). Only 36 percent of the respondents reported that they were working in June/July 2020. The percentage of working males (43 percent) was three times more than females (35 percent). In terms of education attainment, respondents who have completed a bachelor’s degree or higher education were less likely to be working than those with less or no education. Those between 30 years and 50 years were more likely to be working than respondents below 20 years and 60 years and older. In terms of employment sectors, people buying and selling goods have been the most affected (40 percent), followed by those in the services (13 percent) and freelancers (13 percent) and agriculture, hunting and fishing workers (10 percent).

Figure 16: Stopped activity during lockdown

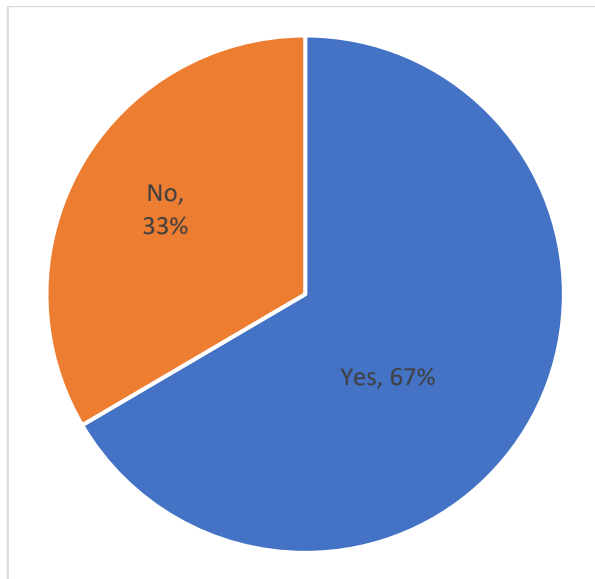
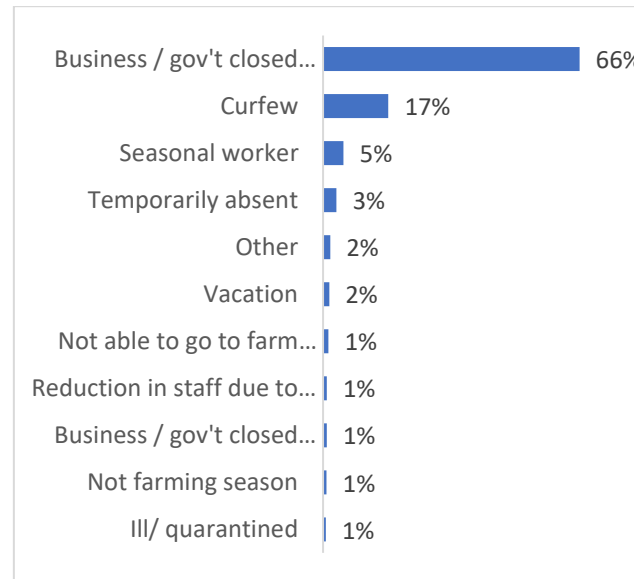


Figure 17: Reasons for stopped activity



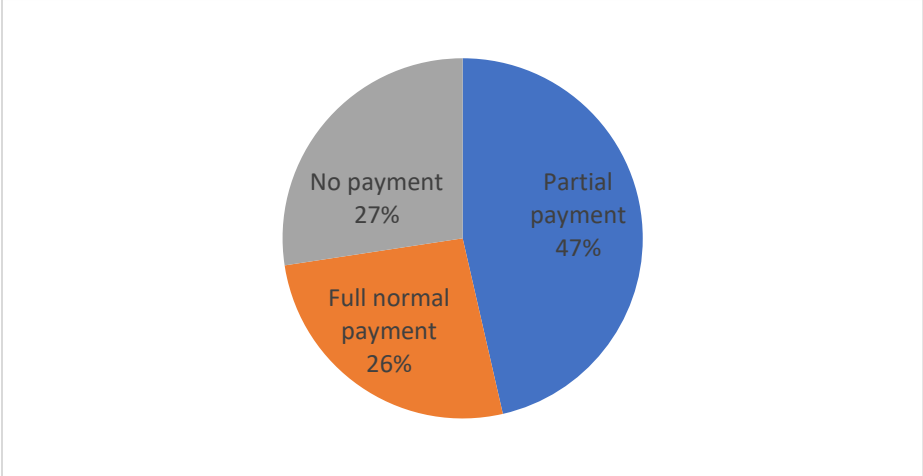
Source: Sudan High Frequency Survey on COVID-19 (2020)

Employees

Among the employed respondents, 86 percent were able to go to the place of work or work from home as usual for their paid job. 19 percent of the working population were employees (i.e. working for someone else). There was not much difference between male and female employees although the share

was slightly higher for males (88 percent compared to 76 percent for females). The majority (47 percent) of those who were unable to work as usual received partial payment, while 27 percent received no payment at all (Figure 18) while 26 percent received full payment even though they were not able to work as usual. This income reduction is particularly pronounced among males. This finding is consistent with recent literature on the impact of COVID-19 on wages (Psacharopoulos et al., 2020).

Figure 18: Payment type for employees unable to work as usual



Source: Sudan High Frequency Survey on COVID-19 (2020)

Farmers

Among the households that normally performed farming activities (growing crops, raising livestock, or fishing) before the COVID-19 outbreak, 66 percent were able to perform normal farming activities during the outbreak. The rural areas were affected more than urban areas (67 percent versus 58 percent). Of the affected households, 28 percent cited reasons related to COVID-19, but nearly two-thirds said they were waiting for the rainy season. Of the households with farm products that needed to be sold, 61 percent were able to sell their products in June/July 2020. The majority (40 percent) of them sold their product at higher prices compared to the same time last year, while 28 percent sold at the same prices and 31 percent sold at lower prices.

4. Impact on non-labor income

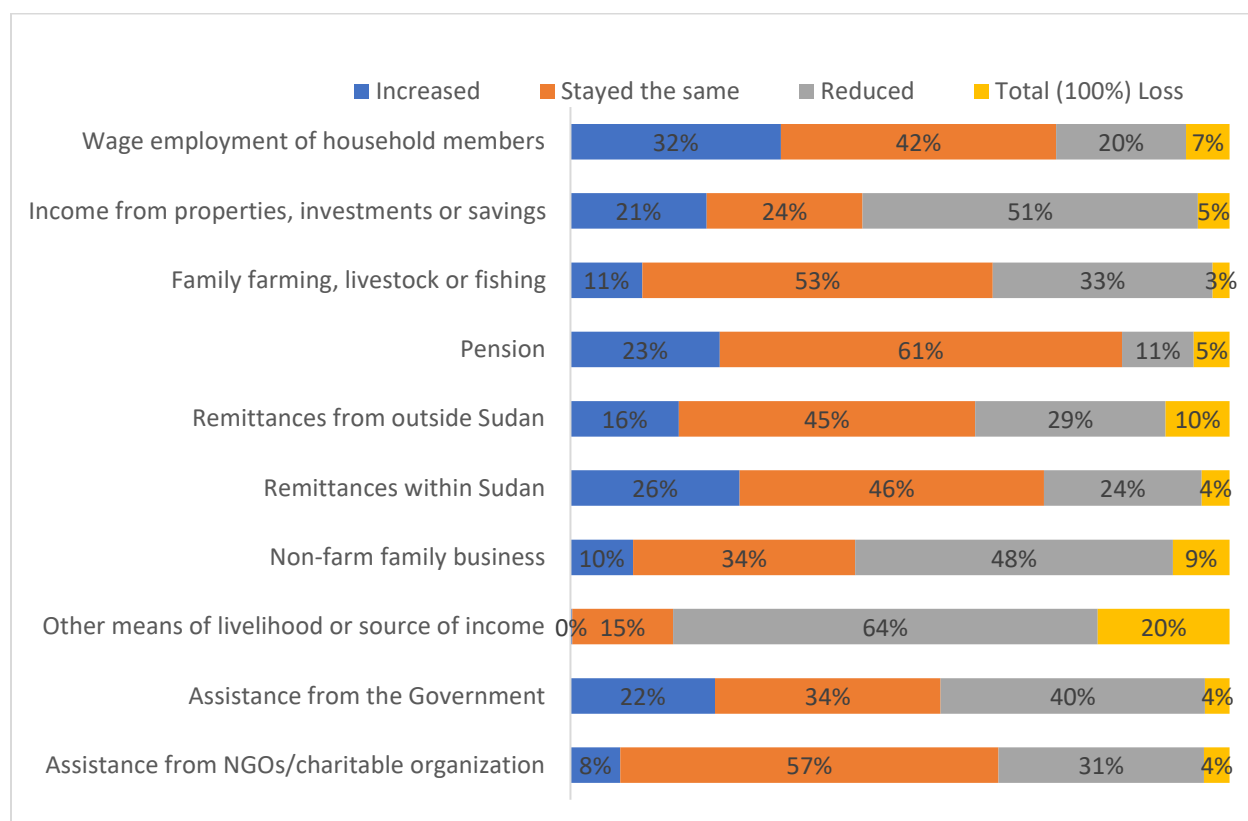
Income Loss

38 percent of the households had experienced a general decrease in their income by June/July 2020, with the higher share of households reporting this impact in urban areas. Income from properties, investments, or savings had been reduced or totally lost for 56 percent of the households for whom this was their means of livelihood or source of income in the last 12 months (Figure 19). About half of the households for whom nonfarm family business, assistance from the government, and assistance from nongovernmental organizations (NGOs)/charitable organizations was their source of income, experienced a reduction or loss in income from. On the other hand, incomes stayed the same or increased for over 60 percent of the households whose sources of income in the last 12 months were wage employment, or pension.

Remittances

One of the channels through which the COVID-19 pandemic is affecting living standards is through the decline in international and domestic remittances. For households that normally received remittances, 29 percent reported a decline in international remittances, while 10 percent experienced a total loss of such remittances since the pandemic outbreak (Figure 19). In terms of remittances from within Sudan, 24 percent of households saw reductions in their remittances since the outbreak of the pandemic, while 4 percent experienced a complete loss of domestic remittances. On the other hand, about two-thirds of households experienced either no change or an increase in their international and domestic remittances. In general, male headed households experienced greater loss in remittances vis-à-vis households headed by females.

Figure 19: Change in household income since the COVID-19 outbreak, by income source



Source: Sudan High Frequency Survey on COVID-19 (2020)

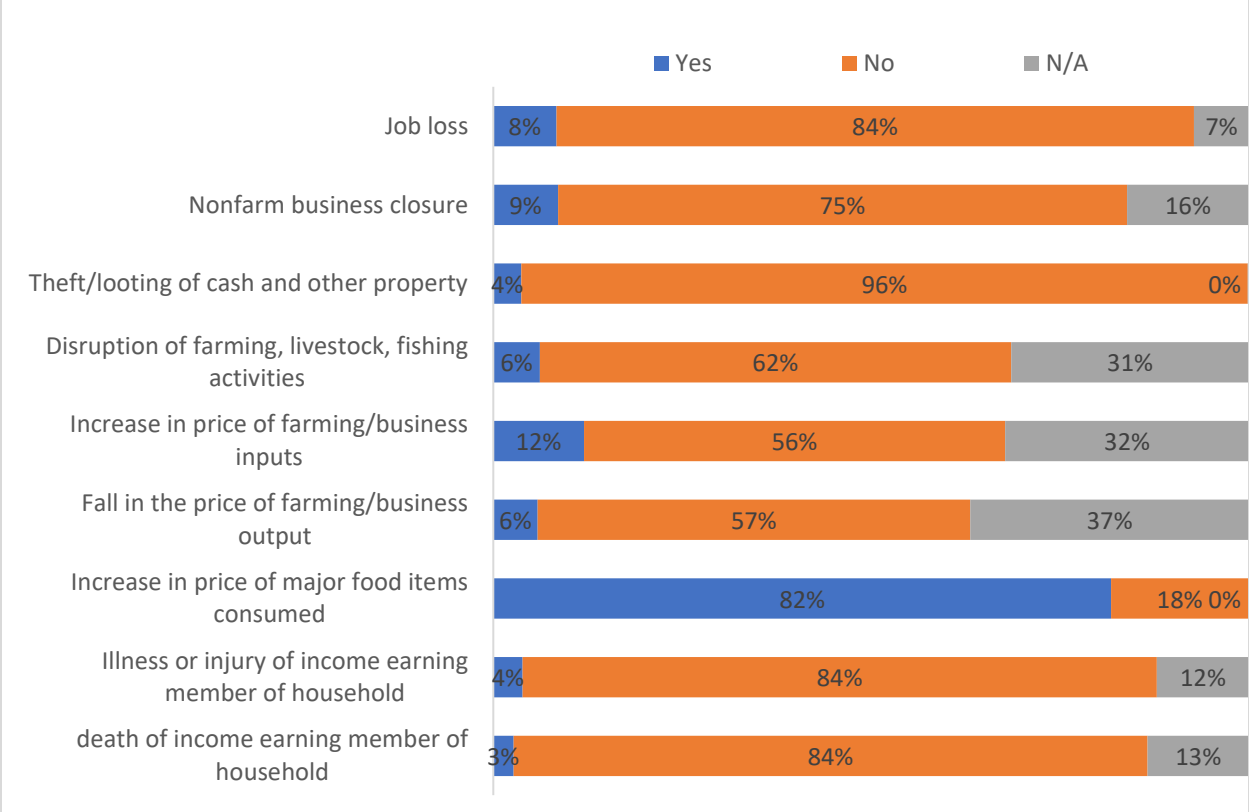
5. Household perception, coping strategies and social assistance

Household Perception

Many of the surveyed households said they had been negatively affected in one way or another by COVID-19. Increase in prices of major food items consumed stands out as the way in which COVID-19 has affected most households (82 percent). Other negative shocks include: an increase in the price of farming/business inputs reported by 12 percent of the households, and a job loss reported by 8 percent

of the households (Figure 20). Decrease in the price of farming/business outputs and illness or death of income-earning household member were other ways in which households across Sudan have felt the brunt of COVID-19. There is a double negative impact of COVID-19 on Sudanese households in terms of income and consumption, in particular among people who are affected by job losses and increases in food prices.

Figure 20: Percentage of households affected by specific shocks since the COVID-19 outbreak

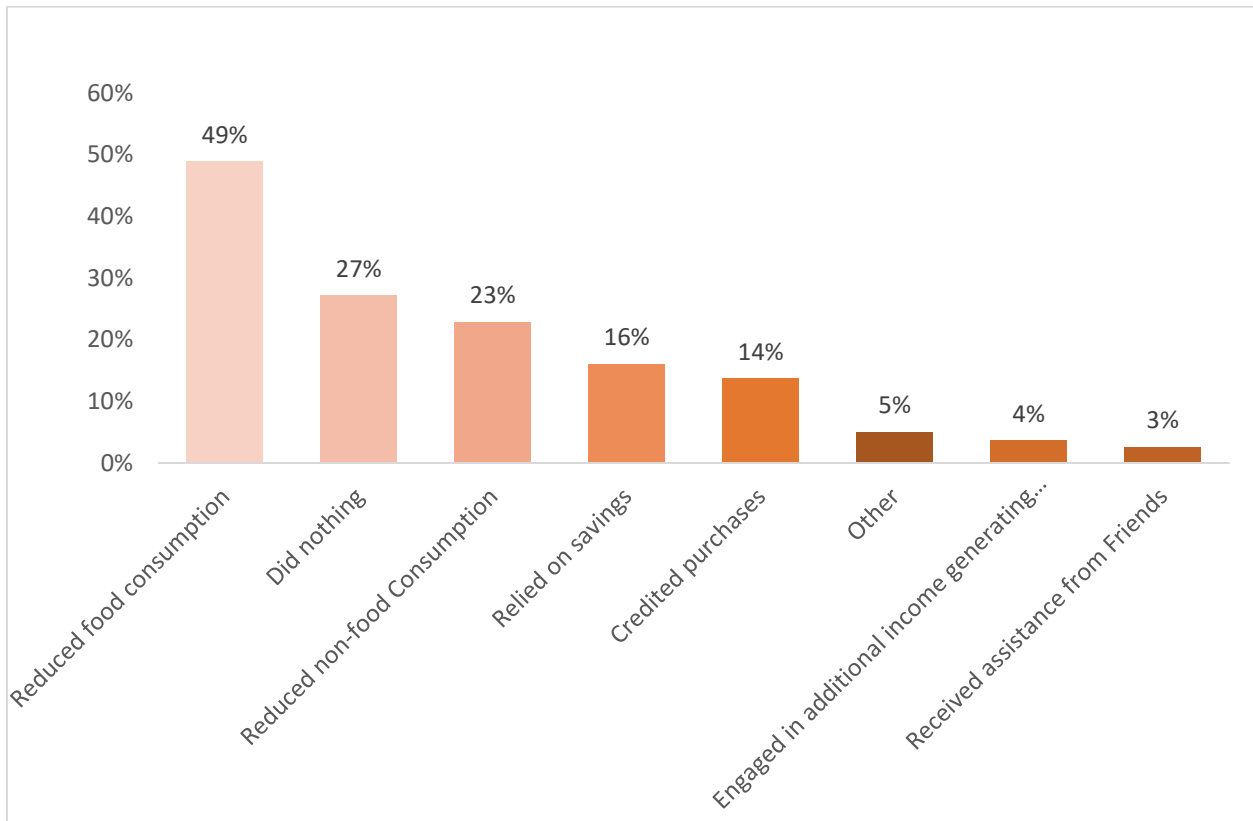


Source: Sudan High Frequency Survey on COVID-19 (2020)

Coping Strategies

To cope with rising food prices, 49 percent of households had to resort to reducing food consumption and 23 percent reduced non-food consumption (Figure 21). More rural households had to reduce their food consumption, while more urban households reduced their non-food consumption. Of the households, 16 percent relied on their savings, while 14 percent resorted to on-credit purchases. A significant share of households (27 percent) did nothing to cope with the rising food prices, and this was more prevalent in rural areas. From a gender perspective, female headed households are more likely to reduce consumption compared to households with a male head.

Figure 21: Measures taken by households affected by increase in prices of major food items

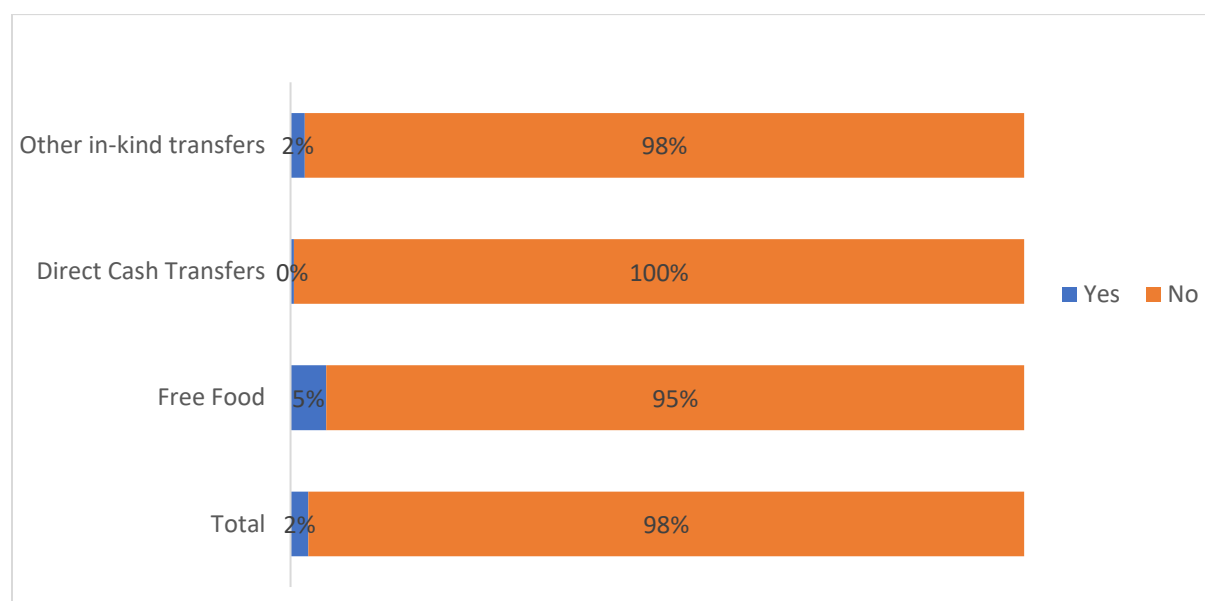


Source: Sudan High Frequency Survey on COVID-19 (2020)

Social Assistance

Social assistance programs are almost non-existent to help mitigate the negative impact of COVID-19 on poor and vulnerable households. Only 2 percent of the surveyed households reported that they received any social assistance in June/July 2020, and that was mainly free food (Figure 22). A very limited share of households received in-kind transfers (2 percent). Direct cash transfers were not delivered to the households. In sum, social assistance programs failed to support the people in time of need, particularly the poorest and most vulnerable.

Figure 22: Share of households receiving social assistance (of any kind) since COVID-19 outbreak



Source: Sudan High Frequency Survey on COVID-19 (2020)

4. SUMMARY AND POTENTIAL POLICY RESPONSES

Summary of main findings

Using data from Round 1 of the Sudan High Frequency Survey on COVID-19, this report analyzes knowledge of preventive measures, perceptions, and behavior; the socioeconomic impact of COVID-19 on households; and adopted coping strategies. The key findings are summarized in numbers as follows.

- Knowledge of the coronavirus disease is quasi-universal in Sudan as almost everyone (98 percent) reported to be aware of it.
- More than 70 percent of the respondents are well informed and adopt basic hygiene and social distancing measures (washing their hands and avoiding close contact). Females are significantly more likely to adopt COVID-19 preventive measures than males.
- 86 percent of the respondents seemed satisfied with the government’s response to COVID-19. Among those unsatisfied with the government’s actions, 58 percent attributed this to the lack of financial assistance from the government, 25 percent of them were unsatisfied because of the late response by the government, 13 percent said that there was a shortage of medical materials, and 5 percent attributed it to limited testing points. About 80 percent of the respondents were worried about the possibility that they or someone in their immediate family might become seriously ill from coronavirus.
- More than 20 percent of the households were unable to buy bread and cereals as well as milk and milk products in June/July 2020 as price increases were felt by most households. For all staples, households headed by females are more likely to be affected.

- About 46 percent of households reported being worried about having enough food to eat, and many modified their eating habits. The findings echo with the IPC estimate of 9.6 million (21 per cent of the population) acutely food insecure people in June-August 2020. Households headed by females are significantly more worried about not having enough food to eat (68 percent compared to 48 percent male headed households).
- About 26 percent of the respondents required medical assistance but were unable to access it due to the unavailability of medical personnel and movement limitations.
- Disruption of children’s access to education is very high. Only 9 percent of the households with children who attended school before the outbreak of COVID-19 (i.e. half of the sample) were engaged in learning activities during school closures due to COVID-19.
- About 20 percent of the households could not access a financial institution (ATM, bank, or mobile money) when needed due to banks’ closure, movement limitation, and fear of contracting coronavirus.
- About 67 percent of the respondents who worked before the COVID-19 lockdown still had not returned to work by June/July 2020. This is mainly comprised of self-employed people or business owners. People buying and selling goods have been the most affected (40 percent). In addition, males are affected significantly more than females (four in five males compared to one in three females)
- About 86 percent of employees (22 percent of the working population) were able to continue working during confinement, either normally or remotely.
- Among the employees who had to stop working, only 26 percent received their full salary while 47 percent received only part of their salary and 27 percent received no payment altogether.
- About 38 percent of the households had experienced a decrease in their income by June/July 2020. In particular, for households that normally received remittances, 29 percent reported a decline in international remittances, and 24 percent experienced reductions in their domestic remittances.
- To cope with income losses, households reduced their food and non-food consumption, drew on their savings for expenditure, and resorted to on-credit purchases.
- Social assistance programs were non-existent, with only 2% of households reported receiving social assistance of any kind.

Potential Policy Responses

From the above discussion, the economic and social costs of the COVID-19 pandemic on Sudanese households are significant. At the same time, social assistance programs are almost non-existent to provide immediate relief to the population, particularly the poor and most vulnerable. It is therefore important to put in place a set of policy responses that can help mitigate such the impact of COVID-19. Based on the observed impacts of COVID-19 on households, the government may consider the following policy measures to minimize negative impacts of COVID-19 on the poor and most vulnerable in the short and medium terms. The potential policy responses are also aligned with recent empirical evidence that

suggests direct interventions at the household level, such as money transfers and social protection measures (Chetty et al., 2020).

1. Minimizing the spread of COVID-19

Given that the ongoing second wave of the pandemic is hitting Sudan much harder than the first wave, it is critical to intensify the government's COVID-19 prevention campaign. Results from this survey would inform areas for improvement to minimize the spread of the virus (for example, promoting adoption of preventive measures, especially among males). The Government of Sudan has increased substantially the number of locations/centers performing COVID-19 test over the last couple of months. Testing is important not only for treatment but also for tracing and informing those who might have been exposed; and this could help with minimizing further spread of the virus. However, some of the test centers seem crowded with insufficient social distancing and without universal use of facemasks. Improvements in this regard would be useful for avoiding contamination at test centers (for example, simple enforcement of facemasks use could go a long way).

2. Ensuring basic needs are met

Commodity prices have been rising before the COVID-19 outbreak and continue to increase even after lifting of the lockdown. The data do not allow to disentangle the price increases due to the already existing economic crisis from the increases due to COVID-19, although the health crisis is expected to have led to further price increases. However, it is found that the rapid COVID-19 outbreak resulted in decreased access to basic needs such as food and medicine. The limited fiscal space in Sudan means that the basic needs of the population can only be ensured through emergency aid programs. In the absence of a preexisting broad-based social assistance program, the government is unlikely to have the capacity to deliver effective emergency support at the scale needed to make a considerable impact on the livelihood of the population. The effective targeting of programs to the neediest would be an important signal of the government's commitment to improving the living conditions of the Sudanese, which will in turn build the population's confidence. This may be more easily achieved if the international community and civil society support the government in the delivery of emergency support.

3. Compensating people for loss of income

This can be done through a social safety net system to mitigate the poverty and social impacts of COVID-19. In the medium term, it would be important to establish a comprehensive social assistance program. In the short term, it is crucial to start rolling out the Sudan Family Support Program as quickly as possible to compensate loss of income for the most vulnerable households. Another way to compensate people for loss of income is targeted one-off payments to specific vulnerable groups of workers (for example, those in the services sector).

4. Avoiding further food price hikes and shortages

As noted earlier, inflation has been rising over the past years due to macroeconomic imbalances. Given the possibility of further price hikes resulting from market disruptions due to the COVID-19 pandemic and their detrimental poverty and social impacts, it would be important for the government to ensure a well-functioning food market. During the lockdown, the government announced a measure to tighten control

over public markets and control the prices of food supplies and medical and nonmedical supplies. If implemented well, this measure can potentially prevent rapid food price hikes and shortages. The exception that was granted to cargo flights allowed continuous inflow of food supplies and production inputs from abroad. Also, the impact of higher food prices and/or potential food shortages can be mitigated through public procurement and distribution of basic food items, as well as through the continuation of (targeted) meal programs even if food distribution mechanisms (for example, use of packaged/dried food) need to be modified to account for the risk of contagion. Establishing food banks or reserves, for use in times of crisis, would help stabilize the food market and minimize food price hikes and food insecurity. Food banks could be filled by purchasing surplus food from net food producers in rural areas. This would have a positive impact on rural incomes and promote domestic production. Furthermore, the government needs to communicate to the population about its efforts to ensure the availability of food and other necessities. This will help minimize panic or fear-driven buying that can push prices up.

5. Mitigating negative impacts on human capital

A short-term response to the negative impacts on access to health services would involve scaling up public health diagnostic and care capabilities in underserved areas and mitigating the impact of unexpected medical costs through, for instance, waivers. Efforts to minimize the spread of the disease would have less detrimental effects on human capital accumulation. One such effort is to continue the government's public awareness campaign to educate the population on hygiene and social distancing measures to reduce the risk of COVID-19 infection. Findings in this report related to prevention behaviors and perceptions about coronavirus can improve the efficacy of the public awareness campaign.

As schools' closure has been lifted, the Ministry of Education could lead efforts to bring all children back to school, particularly those from poor households who run the risk of dropping out. This could entail providing on-site meals for school children and take-home rations (targeted food transfer) to encourage children to stay in school as it cuts down household out-of-pocket expenses. Targeted conditional cash transfers may also be useful in this regard, giving cash to poor households (either as a one-off payment or recurring payments) conditional on children returning to school upon reopening and staying in school. Such interventions would not only help in human capital development of the children but will also have long-term positive impacts on poverty and inequality reduction in Sudan.

6. Providing incentives to firms to minimize layoffs

The measures discussed above can be complemented with additional policies aimed at supporting employment retention or restoration. This may include providing grants to (small) private sector firms to minimize layoffs and allow them to survive and/or be restored post COVID-19. It also entails supporting active labor market programs to transition workers into training or new jobs. Other policy options aimed at supporting firms, particularly those in vulnerable sectors and with limited financial capacity, could include tax breaks/cuts and financial support.

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ANNEX: DATA COLLECTION APPLICATION, SAMPLING AND SUMMARY STATISTICS

Interviews and Data Collection Application

The interviews for the selected household respondents were done through telephone, and data collection for the survey was done using tablets and the Kobo application. Kobo is a software mainly used for collecting reliable information during a humanitarian crisis, especially following a natural disaster such as a large earthquake or a typhoon taking place in any area around the world. Understanding the population's needs is often neglected for lack of quick means to collect and analyze this crucial information. Kobo Toolbox, developed by the Harvard Humanitarian Initiative, is an open source suite of tools for data collection and analysis in humanitarian emergencies and other challenging environments that was built to address this gap.

Kobo Toolbox is a suite of tools for field data collection for use in challenging environments. It is a free and open source software. Most of its users are working in humanitarian crises or are aid professionals and researchers working in developing countries.

Details of the Sampling Design

The sampling frame. Probability sampling depends basically on an up-to-date population frame. In this study, a frame of the registered phone numbers in each state, rural/urban, prepared by the telephone companies is obtained and used for the selection of the sample. It should be noted that this frame may neither be complete nor up-to-date, but still, the survey is using it as the only source that is considered as representative.

Stratification. Stratification is usually introduced in almost all sample surveys to reduce the sampling error through the inclusion of all different characteristics of the population into the sample. It also outweighs the design effect if a simple random sample is not used.

For this survey, stratification is done by

- (a) State and
- (b) Urban/rural mode of living.

Sample design. It is well known that scientific research depends heavily on up-to-date information collected through sampling procedures. A good sample design addresses sampling error (non-sampling error is address by broader survey design and implementation, including training, questionnaire design, good data entry, monitoring protocols, etc.). Interviewing over the phone poses challenges. For example, the protocols for reaching households, handling refusals, data entry typos, the interview environment (noise in the background, interruptions by other household members), problems with connectivity, etc., all of which can influence non-sampling errors. The approach adopted in this survey allows reducing both sampling and non-sampling errors.

The design of the study has a direct impact on survey planning and on sampling methods. It is important to optimize the design of the survey to get as much information as possible at the lowest cost and effort. The problem is to identify a sample that accurately represents the population while minimizing costs and keeping the logistics manageable. In practice, the households that are chosen must therefore be representative of the general population with regard to economic, social, and other characteristics.

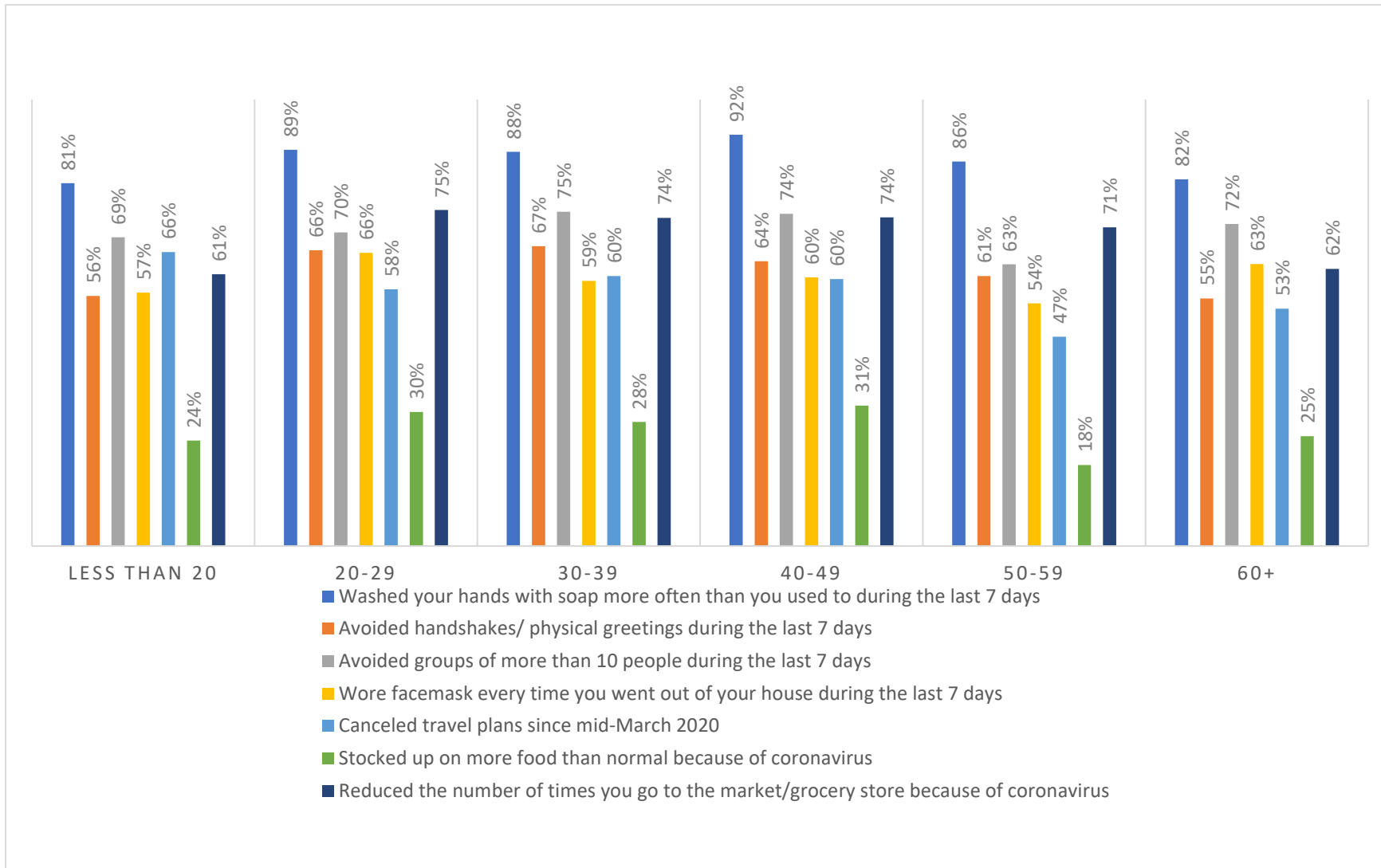
A better strategy, therefore, is to use a stratified design, in which Sudan is subdivided into 18 states (strata) and a subsample is taken from each state. Each state is subdivided into rural and urban. The distribution of the subsample as between states and rural/urban is proportional to the size of the individuals owning mobile phones, that is, not equal allocation. The selection of the individual phones (the households) is random, that is, with equal probability, using a systematic sample procedure in the list (frame) of phones. If a universal phone list was used, this would have meant that it is possible to select two or more numbers from the same household. However, for this survey, the lists of numbers were compiled from different small surveys/projects conducted in recent years at the household level across the country. This reduces the chances of having more than one phone number per household. In addition, during data collection, the interviewers double checked that only one number was called for selected each surveyed household. Therefore, selecting individual phone numbers is the same as selecting households.

Table A1: Summary statistics of the HFS sample compared to the 2014/15 NHBPS and 2014 MICS

	Respondent's characteristics	2020 HFS (percent)	2014/15 NHBPS (percent)	2014 MICS (percent)
Mode of Living	Urban	34.5	35.0	31.5
	Rural	65	65.0	68.5
Relationship to the Head of Household	Head	57	17	14
	Daughter/Son	28	60	60
	Grandchild	0	2	5
	Brother/sister	4	2	3
	Non-Relative	0	0	0
	Parent	2	2	2
	Spouse	8	14	12
	Stepchild	0	0	0
	parent-in-law	1	0	0
	Other	0	3	4
Age Groups	Less than 20	3	8	8
	20-29	39	30	29
	30-39	31	22	22
	40-49	16	17	16
	50-59	8	11	13
	60 and over	3	13	12
Highest Education Attainment	Never Attended School	6	46	36
	Primary Complete	16	32	43
	Intermediate Complete	7	5	2
	Secondary Complete	31	10	13
	Bachelor Completed or Higher	40	7	5

Source: Authors' calculations based on the 2020 Sudan High Frequency Survey (HFS) on COVID-19; 2014/15 National Household Budget and Poverty Survey (NHBPS) and the 2014 MICS (Multiple Indicator Cluster Survey).

Figure A1: COVID-19 Preventive Measures Adopted by Age Group



Source: Sudan High Frequency Survey on COVID-19 (2020)