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SOCIOLOGY | RESEARCH ARTICLE

Perception and impact of the COVID-19 pandemic among smallholder farmers in eastern Ethiopia

Muluken Gezahegn Wordofa^{1*}, Getachew Shambel Endris², Chanyalew Seyoum Aweke³, Jemal Y. Hassen⁴, Jeylan Woliye⁵, Awol Seid⁶, Elyas Ahmed⁷, Hakim Hashim⁸ and Eric Ndemo Okoyo⁸

Abstract: The COVID-19 pandemic has affected all aspects of human life. Its effect was particularly severe in sectors that are directly related to agricultural production and food security. This research was conducted to uncover the perception of smallholder farmers in eastern Ethiopia about the pandemic, prevention and control measures, and its impact on their livelihood. Through a semi-structured interview schedule conducted on 176 randomly selected rural households, we found a varying level of practicing the recommended COVID-19 prevention and control measures. The study also found that the response of the media, family members and religious organizations to the pandemic was rated as “very good”. The most important impact of the pandemic was associated with household’s inability to obtain a reasonable price for their agricultural produce, and inability to attend religious gatherings/prayers. Other impacts of the pandemic were fear of losing friends and getting sick/losing life. Considering the increasing number of COVID-19 cases, a reinforced awareness creation campaign, behaviour change communication by extension workers, and continued provision of basic health and sanitation facilities was recommended. Such interventions should focus on improving the access of smallholders to Personal Protective Equipments (PPEs). Continued engagement with

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diverse media platforms and developing trust is also needed to increase the spread of reliable COVID-19 related information. Moreover, safeguarding the agricultural sector against risks and uncertainties has to be prioritized through strengthening early warning system, distributing improved/early-maturing seeds and fertilizers, providing insecticides/pesticides, linking smallholders to market outlets, and emergency food aid via the Productive Safety Net Program (PSNP).

Subjects: Development Studies; Rural Development; Economics and Development; Gender & Development; Sustainable Development

Keywords: COVID-19; impact; smallholder farmers; food security; perception; Ethiopia

1. Introduction

Coronavirus disease 2019 (COVID-19), caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-COV-2), was a major incident affecting every facet of billions of people throughout the world (Béné, 2020; Nicola et al., 2020). It first occurred in Wuhan province of China (Heymann et al., 2020). Following its fast spread and effect, the disease was declared as a global health emergency on 30 January 2020 and then as a pandemic on 11 March 2020 by the World Health Organization (WHO) (Paslakis et al., 2020). As of 21 October 2020, there are 40,895,435 cases and 1,126,382 deaths globally (Johns Hopkins University & Medicine Coronavirus Resource Center, 2020). As of 26 April 2023, there have been 764,474,387 confirmed cases of COVID-19, including 6,915,286 deaths, reported to WHO. To contain the spread of the COVID-19 pandemic, governments throughout the world have imposed various safety and precautionary measures, commonly referred to as “lockdown”, including travel bans/restrictions, quarantines, border shutdowns, social distancing, mandatory wearing of face masks, and other protective procedures. Such measures, although undeniably essential to reduce the spread of the virus and loss of life, were feared to result in economic, social, physical and psychological crisis (Beyene et al., 2020; Devereux et al., 2020; Paslakis et al., 2020).

The COVID-19 pandemic brought additional stress to Ethiopia’s already poor health system (Wondimu & Girma, 2020). The country reported its first COVID-19 case on 13 March 2020 (WHO, 2020c(d)). To contain the spread of the virus, the country has instituted several measures. These included preparing health institutions to fully serve the patients of COVID-19, organizing teams that facilitate the control and prevention of the disease at different levels, declaring state of emergency, preparing isolation and quarantine centers, awareness creation in different methods, and resource mobilization from different bodies to support vulnerable groups and others (Misganaw et al., 2017; WHO, 2020b(e); Hirvonen et al. (2020). Although different measures have been taken, the number of cases has been increasing and it was feared that the number might increase exponentially in the coming few months (MOH and EPHI, 2020). All regions were affected with higher spread in the capital city, Addis Ababa (Beyene et al., 2020). In Ethiopia, from 3 January 2020 to 19 April 2023, there have been 500,774 confirmed cases of COVID-19 with 7,574 deaths, reported to WHO (2023).

The impact of COVID-19 extended from its direct impact on health of people and health facilities to agricultural production and food security (Baker et al., 2022; Béné, 2020; Leddy et al., 2020; Mogaji et al., 2022; Nicola et al., 2020; Pu & Zhong, 2020; Sridhar et al., 2023). Its impact on climate change through Green House Gas (GHG) emissions has also been documented (Kumar et al., 2022; Ray et al., 2022). According to Triggs and Kharas (2020), COVID-19 prompted three types of economic shocks. First, it affected outputs because workers got sick and unemployed. Second, the “lockdown” measures created low demand and supply as well as financial crisis. Third, it created psychological distress by keeping people and organizations in prolonged state of worry. The COVID-19 pandemic-related “lockdown” measures have resulted in substantial livelihood shocks, including fear of infection, increased food insecurity and stress among poor rural

households in Ethiopia (Alderman et al., 2020; Kharel et al., 2022; Laborde et al., 2020). Shortage and skyrocketing prices of agricultural inputs (Tamru et al., 2020), labour shortages (Laborde et al., 2020), inability to sell agricultural products due to low demand (Tsfaye et al., 2020; Worku & Ülkü, 2022), wastage of agricultural produce (Tsfaye et al., 2020), and unemployment (Beyene et al., 2020; Burki, 2020; Geda, 2020; Hirvonen et al., 2020) were some of the pandemic-related challenges facing the agricultural sector in the country.

In an attempt to understand COVID-19 related preventive practices and impact of the pandemic, we conducted a rapid assessment among smallholder farmers in eastern Ethiopia. More specifically, this study assessed: a) households' compliance with the WHO recommended COVID-19 protective measures and practices, b) perception on the quality of response to COVID-19 by different groups and institutions, c) perception on the level of trusting people and organizations amidst the COVID-19 crisis, and d) impact of COVID-19 on economic, social and psychological aspects of rural households in the study area. We believe that our results will contribute to the national and international efforts to protect smallholders from the pandemic, shed light on important steps taken so far, work that needs to be strengthened, as well as additional strategies to be pursued to safeguard smallholder livelihoods against the debilitating impact of the COVID-19 pandemic.

The remainder of the article is structured as follows. In Section 2, we present research methodology followed to select study area and respondents, gather and analyse data. In Section 3, key research findings are presented, interpreted and discussed. Conclusion and policy implications are provided in Section 4.

2. Materials and methods

2.1. Study area and sampling

This study was conducted to assess smallholders' perception and effect of the COVID-19 pandemic on the social relationships and livelihoods of households in selected parts of eastern Ethiopia (Figure 1). The study specifically considered four districts from East Hararghe Zone of Oromia region and Harari regional states, namely Haramaya, Kombolcha, Babile, and Harar Zuria.

The sample for this study comes from a rapid assessment done in the study area. The four districts were purposively selected due to their level of exposure to COVID-19, ease of accessibility, and availability of enumerators willing to travel to and gather data from them. Due to time and urgency of the problem, sample selection was done through a joint discussion with the concerned officials in the study area and relevant offices.

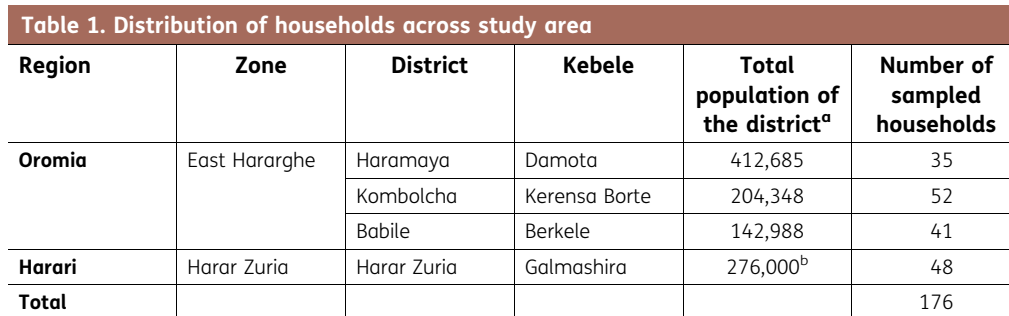
Table 1 presents the distribution of selected households across the study area. Accordingly, the sample for this study comprises 35 households from Haramaya, 52 from Kombolcha, 41 from Babile, and 48 from Harar Zuria districts. The total numbers of households included in this study are 176.

2.2. Data sources and data collection

The data used in this study comes from a face-to-face interview of rural households in the four randomly selected districts of eastern Ethiopia. Primary data was obtained from the respondents using semi-structured interview schedules that were carefully prepared and pre-tested. Field data collectors, supervised by experts from Haramaya University, were employed to gather the data. Data was collected between April and May, 2020.

Both qualitative and quantitative data relevant for the study were gathered. The starting point in the data collection process was gathering basic socio-demographic data. This was followed by livelihood activities and main income sources of the respondents. We also collected data on risks and uncertainties facing the respondents, including food shortage months and climate-change

Note: Source: Bedasa and Hussein (2018)



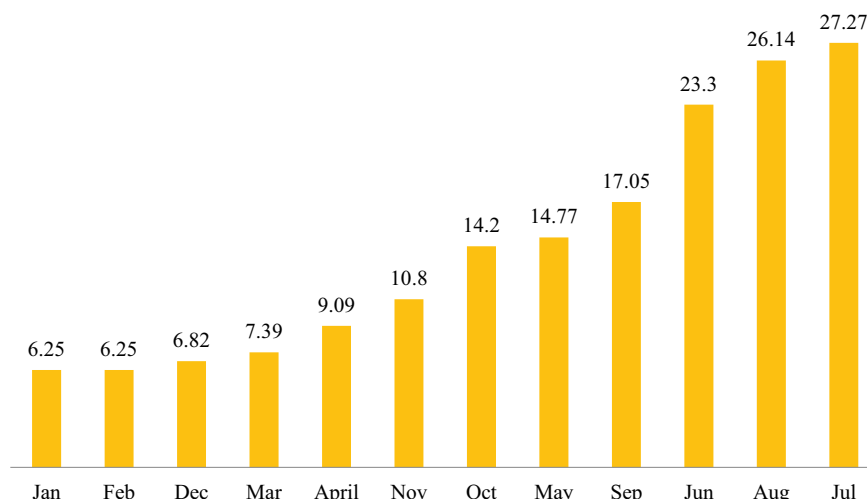
induced shocks, such as occurrence of pests/diseases, flood, etc. We also gathered primary data on level of exposure of households to COVID-19 and protective measures employed by them. Our survey instrument contained questions relating to whether respondents practiced social distancing, hand washing, avoiding hand shaking, avoiding large gatherings, travel restrictions, avoiding touching own face and other objects, wearing face masks and gloves, and applying hand sanitizers.

2.3. Data analysis

Page 4 of 17

Figure 2. Proportion of households facing food shortage in a given month of the year (2020).

Source: own illustration from survey data, 2020



data were summarized and presented in graphs to illustrate differences and highlight important findings (e.g., Figure 2; Figure 3; Figure 5).

The analysed data were interpreted and discussed in relation to relevant recent literature from the country and elsewhere.

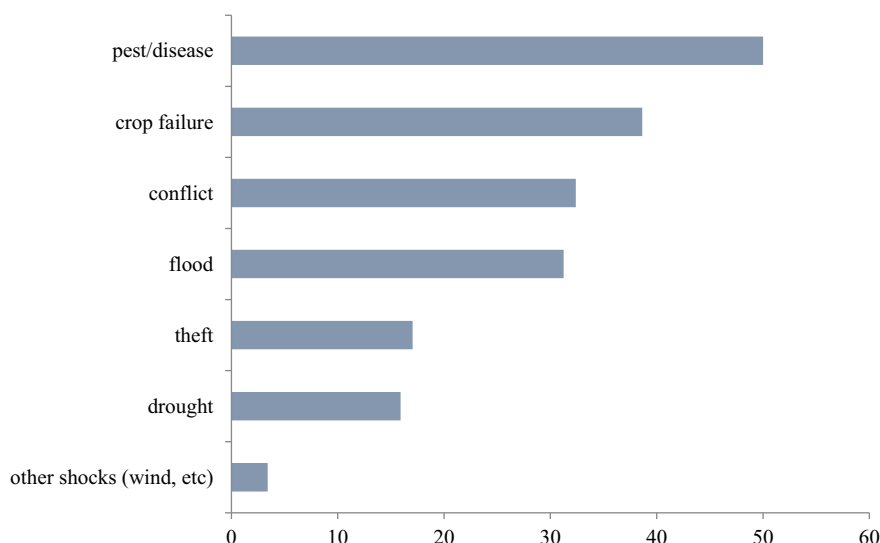
3. Result and discussion

3.1. Descriptive results on basic socio-demographic characteristics

The result of descriptive analysis on household's socio-demographic characteristics is given in Tables 2 and 3. According to Table 2, the average age of the sample respondents is 38 years, suggesting that most of the respondents are in their productive age group, able to engage in income-generating activities. The mean family size is high (i.e., six individuals), which is a common characteristic in eastern Ethiopia. Furthermore, the result indicates that our respondents operate a very small plot of land (0.42 ha, on average), which is too small to be economically viable.

Figure 3. Experience with climate change induced shocks and uncertainties.

Note: Source: own illustration based on survey data, 2020



Large family size and small land size have affected the livelihoods and food security status of rural households in the study area. In particular, for majority of the households relying on own agricultural production for their household consumption, this worsens their economic situation. Coupled with low level of modern agricultural technology use, small land size poses great challenge on a household's ability to produce enough to satisfy their own food needs as well as surplus produce for the market. Since the COVID-19 pandemic has affected the agricultural sector just like it did elsewhere (Nicola et al., 2020), interventions that promote better use of modern agricultural practices are greatly required in the study area. Moreover, since expanding area of land under cultivation is no longer an option in densely populated areas like our study districts, it is of paramount importance to strengthen extension and rural services and modern agricultural input availability and utilization.

Table 2 also gives us a snapshot of the estimated average income (both monthly and yearly) of the study participants. Although the declared monthly income appears not to vary greatly across the respondents, there is great variation in terms of average annual income. Using the exchange rate obtained from National Bank of Ethiopia for 9 April 2020 (i.e., 1 USD = 33.0209 ETB), the average monthly income is USD 56.86, which translates to USD 1.90/day, whereas the average yearly income is USD 731.34. However, these figures should be interpreted with care as detailed income accounting was not conducted during the survey due to the shock of COVID-19 on

Table 2. Descriptive analysis results on continuous socio-demographic characteristics (n = 176)

Variable	Mean	Std. Dev.
Age (year)	38.11	13.26
Total family size (number)	6.13	2.59
Farm size (ha)	0.42	0.30
Estimated monthly income (ETB)	1877.56	1468.83
Estimated annual income (ETB)	24149.66	30696.88

Source: own analysis from survey data, 2020

Note: ha = hectare; ETB = Ethiopian Birr (official currency); Std. Dev. = Standard Deviation

Table 3. Descriptive analysis results on discrete/dummy socio-demographic characteristics (n = 176)

Variable	Per cent
Sex (male)	40.34
Marital status	
Married	90.91
Divorced	2.27
Widowed	6.82
Education	
No formal education	68.18
Religious education	2.27
1–4 grade	9.66
5–8 grade	13.07
9–10 grade	2.84
Diploma	2.84
Bachelor degree and above	1.14

Source: own analysis from survey data, 2020

(1)	(2)										(3)
Quality of response to COVID-19	Scale (1 = very low; 10 = very high)										Mean (Std. Dev.)
	1	2	3	4	5	6	7	8	9	10	
Family members	1.1	0.6	0.6	1.1	4.0	4.6	5.7	17.6	20.5	44.3	8.6 (1.8)
Neighbours	0.6	0.0	1.7	2.3	5.1	6.8	5.1	18.2	24.4	35.8	8.4 (1.8)
Religious organizations	2.8	0.6	0.6	2.3	2.3	6.3	7.4	13.1	23.9	40.9	8.5 (2.1)
Media	1.7	0.0	0.0	0.0	2.8	3.4	2.8	13.1	18.8	57.4	9.0 (1.6)
Federal government	11.4	1.7	2.3	0.6	4.0	3.4	6.8	11.4	23.9	34.7	7.6 (3.0)
Regional government	14.2	1.7	2.3	2.3	2.3	2.3	7.4	18.2	18.8	30.1	7.3 (3.1)
Health sector	23.3	0.0	1.7	2.8	5.7	4.0	7.4	17.1	14.2	23.9	6.5 (3.4)
Political parties	28.4	1.7	0.6	4.0	7.4	3.4	6.8	16.5	10.8	20.5	5.9 (3.6)

Page 7 of 17

researchers and respondents as well as the mobility restrictions due to the government lockdown imposed following the pandemic.

In Table 3, we present the descriptive results for categorical socio-demographic variables. From the Table, it is clear that roughly 60% of the sample respondents are females. Most of our respondents are married and with very low level of formal education background.

3.2. Livelihood activities, main income sources and shocks

A study conducted in the country documented the undesirable effects of the COVID-19 pandemic on the key sectors of the economy (Beyene et al., 2020). In our survey, we took one step forward to look into the main sources of livelihood in the study area. We found that the sample respondents are primarily engaged in various income-generating activities, such as selling farm/crop produce (44.89%), animal production and selling of farm produce (32.96%), relying on government subsidy through the Productive Safety Net Program (PSNP) and casual labour (20.45%). Formal employment accounted for only 1.70%.

As found in our study, the pandemic has affected availability of casual labour for agricultural production, which corroborates the results of Tamru et al. (2020), who found that the COVID-19 crisis affected labour availability for vegetable production in selected parts of the country. This was mainly due to the rapid enforcement of the restrictions imposed by the government in the immediate aftermath of the occurrence of the pandemic in the country (i.e., travel restrictions and social distancing, including bans on social gatherings). The Ethiopian PSNP is hailed as one of the top policy instruments put in place to tackle household food insecurity and chronic poverty. Although low in coverage in the study area, some of our respondents have been benefiting from the emergency food aid component of the PSNP. Nevertheless, in line with Beyene et al. (2020), we emphasize the importance of expanding the depth and coverage of the PSNP to rural and urban dwellers who are vulnerable and likely to be hard hit by the COVID-19 pandemic. Such measures can accelerate the race towards recovery from the shock through enhancing food production systems and healthy livelihoods.

Our findings on rural household livelihoods suggest the existence of some level of diversification of income sources—farm and non-/off-farm activities. The study area is known for the production of sorghum, vegetables and production and marketing of Chat (*Katha edulis*) and small ruminants. Due to lack of adequate farm land and inputs, some of the respondents are engaged in casual labour by working off their farm to generate income to cover their household's food and non-food expenditures. Nevertheless, we found that about 33% of the respondents experienced food shortage. On average, the households experienced 1.69 months (Std. Dev. 3.18) of food shortage with minimum and maximum values being 0 and 12 months, respectively. Disaggregating the incidence of food shortage, we found that most of the households suffered from food shortages in the months of July, August and June (Figure 2).

Our finding in this regard is consistent with that of Sisha (2020). Although detailed and rigorous research is required to determine the extent of food insecurity and its determinants amidst the pandemic, it was found elsewhere that food insecurity is rampant as a result of COVID-19 crisis (Leddy et al., 2020). Therefore, there is an urgent need to focus on interventions that are directly dealing with sectors prioritizing agricultural production, food security and poverty reduction in the country (Beyene et al., 2020).

In the study area, households also faced different types of climate-induced shocks and uncertainties. Figure 3 depicts some of the common shocks experienced by the households in the study area.

Accordingly, incidence of pest/disease (including the recent desert locust attack); crop failure due to erratic, unreliable, inadequate and untimely rainfall; conflict arising as a consequence of

competition for scarce pasture and water; and flood are the most important shocks prevalent in the study area. Together with the COVID-19 pandemic-related crisis, these shocks pose great challenge to rural households' ability to bring food to the table. For majority of households relying on own produce for most of their household consumption, such shocks could plunge them into poverty and poverty-related diseases. Hence, safeguarding the agricultural sector against risks and uncertainties emanating from natural and man-made causes has to be prioritized using available and innovative options, including strengthening early warning mechanisms and disaster risk reduction and mitigation strategies, distributing improved/early-maturing seeds and fertilizers, providing insecticides/pesticides, and emergency food/cash aids. To this end, institutions that directly interact with the farming community, such as agricultural extension, cooperatives and health care need to aggressively engage in protecting the livelihood sources of the farmers through participatory planning of safety measures ahead of the incidences. This also calls for greater coordination of efforts among governmental, non-governmental, and civil society organizations operating in the area in order to effectively and efficiently respond to such calamities in the shortest time possible.

3.3. Exposure to COVID-19 and protective measures implemented

Assessing the level of exposure to COVID-19, we found that all our respondents live in areas highly exposed to COVID-19. Our data further shows that 31.25% of the respondents are smokers. However, only 5% of the respondents declared that they suffered from chronic diseases, such as hypertension, diabetes and lung cancer. Low prevalence of chronic diseases among the respondents is advantageous because of the severe effects of the COVID-19 on people who suffer from such existing complications.

In response to the outbreak of the COVID-19 pandemic, various protective measures have been advised by the Ministry of Health, universities and local administration. Consequently, there were several awareness creation campaigns conducted to educate the general population on safety measures. In a study conducted in Northwest Ethiopia, it was suggested that improving awareness through health education plays a great role in addressing the pandemic (Kassie et al., 2020). Likewise, a study conducted in India recommended the need to intensify awareness about COVID-19 pandemic (Roy et al., 2020). The COVID-19 protective measures were also broadcasted and demonstrated through various Information and Communication Technologies (ICTs), such as radio, TV, social media, etc in the country (Wondimu & Girma, 2020).

However, access to such digital information is generally limited among rural dwellers since they do not interact adequately with the ICTs (Baye, 2020). Even among healthcare practitioners, it was found that only about 28% of health professionals working in Ethiopian public university hospitals access COVID-19 related information from social media (Girma et al., 2020). Therefore, it is necessary to diversify the source of COVID-19 information as well as adapt the content of the message to suit the various segments of the population in order to effectively contain the spread of the virus and curb its adverse effects (Baye, 2020). Effective use of ICTs by healthcare professionals and community members can also promote telemedicine, the implementation of which is poor in the country (Biruk & Abetu, 2018). Telemedicine can enable health professionals interact with their patients remotely and thereby reduce patients' visit to health centers. In so doing, it can contribute to social distancing and reduce the spread of the virus (Hollander & Carr, 2020).

Figure 4 depicts the COVID-19 protective measures practiced by smallholder households in the study area.

Overall, we found that majority of the respondents employed social distancing in the past 21 days preceding the survey (94.45%). Social distancing measures are one of the most effective measures against the spread of COVID-19 (Nicola et al., 2020; World Health Organization WHO, 2020a). However, such measures have resulted in disturbances in the social fabric and life of many communities. In countries like Ethiopia that are characterized by strong social life (Duguma & Hager, 2011), social distancing creates disruptions in the normal functioning of informal

institutions, such as *iddir*, *iqub*, *mahber* and other ceremonies. Lack of participation in these social events may lead to social crisis (Finegan et al., 2020) and mental health problems. Furthermore, social distancing was found to be associated with reduced workforce availability as well as jobs lost (Nicola et al., 2020). It is, therefore, essential to balance the gain from social distancing with the downside of it. More importantly, it is vital to understand how social distancing affects the social capital of a society and how the later can pave the way for effective implementation of such measures to contain person-to-person transmission of COVID-19.

According to (2020a), regular hand washing is another effective mechanism to combat COVID-19. In our study, we found that most of the respondents washed their hands for 20 seconds with soap and water (91.48%). On average, the respondents washed their hands 2.65 times a day (Std. Dev. 2.64) with minimum and maximum values being 0 and 10, respectively. In a country where 43 million people have no hand washing facility (Okoi & Bwawa, 2020), implementing proper hand washing may be challenging. In this regard, our finding appears to be contrary to the hurdles facing rural population. However, it should be noted that this research was conducted during a time when many organizations were aggressively encouraging hand washing by providing water and detergents. In a study conducted in Jimma, Ethiopia, frequent hand washing was found to be a dominant practice against the COVID-19 pandemic (Kebede et al., 2020).

In this research, we also found that majority of the respondents avoided shaking hands in the past 7 days preceding the survey (90.91%). Avoidance of hand shaking was the second dominant practice employed by people in Jimma, Ethiopia (Kebede et al., 2020). Likewise, many of the respondents avoided large/public gatherings as well as touching own face (i.e., eyes, mouth, and nose). However, the study also found that a very small proportion of respondents wore face mask (21.02%) and applied hand sanitizers (10.23%) during the study period. This may be due to unavailability of these items, lack of awareness about their importance, or a simple ignorance to use them. Nevertheless, as the world is racing towards containing the spread of the virus through all means possible, concerned organizations need to promote the proper utilizations of face masks and hand sanitizers in the study area.

3.4. Perception on quality of response to COVID-19

Perception on the quality of response to the COVID-19 pandemic was evaluated using a ten-point Likert Scale, ranging from 1=very low to 10=very high (Column 2, Table 4). The results are presented in Table 4. As can be seen in the Table, evaluations of perception were carried out on the response of family members, neighbours, religious organizations, media, federal and regional governments, and political parties to the COVID-19 pandemic. Overall, the result indicates that the quality of response to the COVID-19 pandemic by the different category of people and institutions was rated as very good. More specifically, the response of the media to the pandemic was rated as very high (Column 3, Table 4), implying that the media played a great role in creating awareness about the nature of COVID-19, the way it transmits from people to people, and the prevention, precaution and treatment mechanisms. It was also found that the response of family members, religious organizations, and neighbours was rated very high (8.64, 8.45 and 8.40 out of 10.0, respectively).

This result indicates that family members responded favourably to the COVID-19 crisis by showing the required behaviour change to keep the safety of each other. Religious organizations were also at the forefront in the fight against COVID-19 in the study area by teaching their members about the effect of the pandemic and restricting large gatherings. These organizations also cooperated with the Ministry of Health and other government organizations in order to curb the spread of the virus in their congregation and community at large. The response of neighbours was also rated high in that neighbours took the necessary actions to observe social distancing (avoiding hand shaking, exchange of goods, and get-together for some social events). Table 4 also shows that the respondents rated the actions of some political parties as low in the fight against the COVID-19 crisis. As the country was preparing for the general election this year, the COVID-19

Figure 4. Proportion of households applying protective measures against COVID-19.

Note: Source: own illustration from survey data, 2020

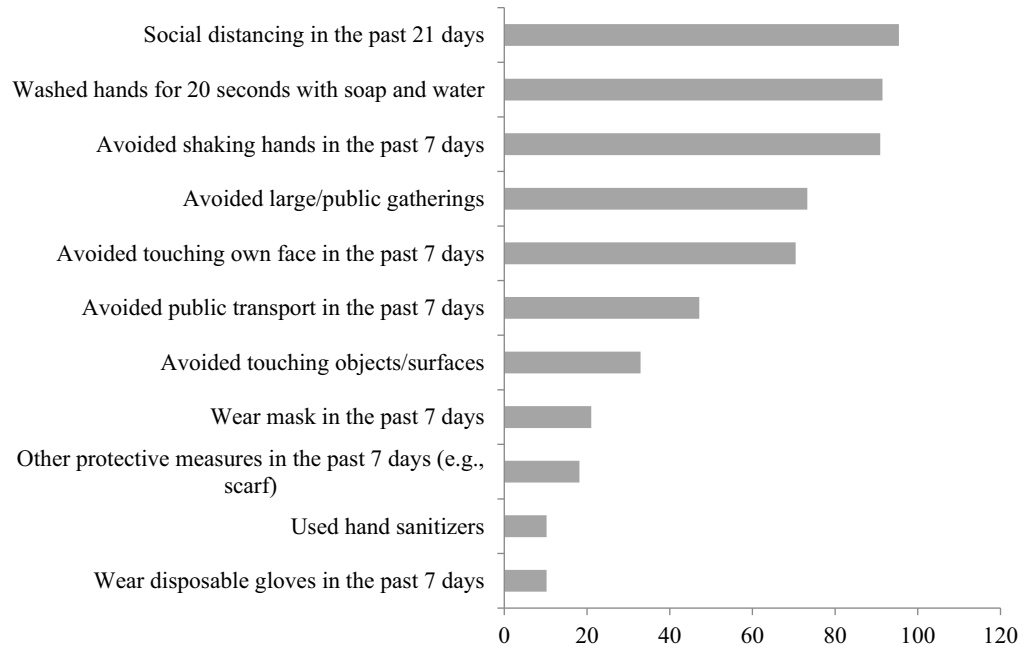
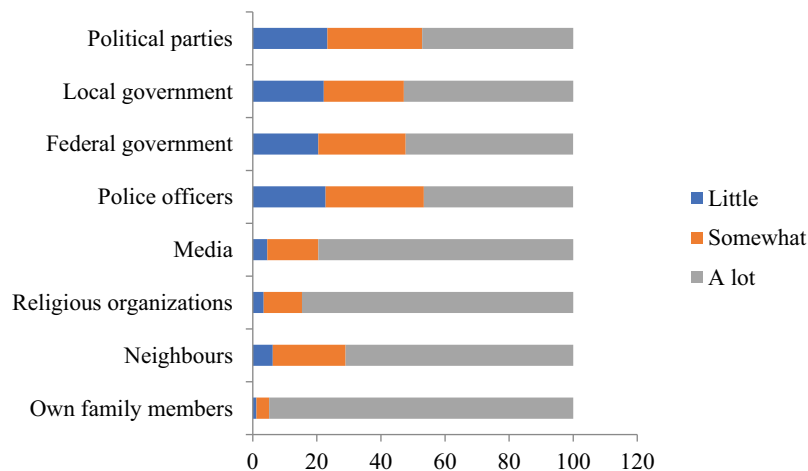


Figure 5. Respondents' perception on level of trusting people and organizations amidst exposure to COVID-19.

Note: Source: own analysis based on survey data, 2020



crisis forced it to be postponed due to safety concerns. This has become a big issue for some political parties, causing unrest and instability in some parts of the country, which created another challenge in the fight against the pandemic (Shigute et al., 2020). However, the response of the federal and regional governments was rated as good.

Our result further indicates that the health sector needs to bolster its efforts in curbing the COVID-19 pandemic. It is conceivable that the health sector in many countries is operating under heavy stress in this period. The health sector of countries like Ethiopia, who were struggling to provide basic health services to their people, is challenged even more due to the COVID-19 pandemic (Robertson et al., 2020). The country has few health professionals and limited physical infrastructures, suggesting that the health needs of the country are not adequately addressed before the onset of the pandemic (Wondimu & Girma, 2020). Therefore, increased investments in the human and non-human resources in the health sector are greatly needed to strengthen the capacity of the health system to provide the much needed healthcare amidst the COVID-19 pandemic.

3.5. Perception on level of trusting people and organizations amidst COVID-19 pandemic

“Building, strengthening and maintaining trust” is one of the “ten considerations for effectively managing the COVID-19 transition” (Habersaat et al., 2020). In our study, the level of respondents’ trust on people and organizations amidst the COVID-19 pandemic was assessed using a three-point Likert Scale (little, somewhat, and a lot). The results are presented in Figure 5. The results show that the respondents have the highest level of trust for their own family members. They perceived their family members as being responsible for protecting the whole family by properly communicating information on COVID-19 as well as observing all the safety and precautionary measures recommended by health and local officials. Second to own family members are religious organizations. These institutions are perceived to be trustworthy in disseminating reliable information about COVID-19 to their followers. Moreover, since leaders of religious organizations are highly regarded by their followers, this result implies that the involvement of such institutions in the fight against the pandemic can result in a great success.

The respondents’ trust on the role of media comes third—after family members and religious organizations. Since the time of the survey was at the early stage of the onset of the pandemic in the study area, some people had hesitations on the authenticity of information related to the severity and effect of the COVID-19. Therefore, some people took the information from the media lightly, sometimes referring it to as a hoax or a government propaganda issue. In a recent study conducted elsewhere in the country, it was found that people were avoiding the consumption of animal source foods (meat, milk, yogurt, cheese) following media reports that such consumption habits may exacerbate the chances of contracting COVID-19 (Tesfaye et al., 2020). Although such misinformation was later corrected for dairy products, it serves as a lesson for the impact of misinformation on people’s behaviour and actions/decisions. This is why “anticipating and managing misinformation as well as engaging with media outlets” are regarded as two of the “ten considerations for effectively managing the COVID-19 transition” (Habersaat et al., 2020).

According to our findings, trusting neighbours was rated high by the respondents (Figure 4). Due to the prevailing lifestyle in the study area, there is a high level of trust on neighbours on matters pertaining to their social life. Our study finds that the respondents trust their neighbours that they will adhere to the recommendations put forward by health and other organizations to safeguard their community from the pandemic. However, the level of respondents’ trust on the role of the local/federal government and other actors was found to be low (Figure 5).

3.6. Perceived impact of the COVID-19 pandemic

Triggs and Kharas (2020) identify three categories of economic impact of COVID-19 –unemployment; low demand, reduced output/supply and financial crisis; and, psychological distress. Specific to the agricultural sector that is the backbone of many economies worldwide, there are increasing concerns that agricultural production will face grave challenges as a result of the pandemic (Pu & Zhong, 2020). In our study, the perceived impact of COVID-19 was assessed across different sectors and community social life. The results are presented in Figure 6. As can be seen in the Figure, the highest impact of the pandemic is associated with household’s inability to obtain a reasonable price for their agricultural produce (as indicated by 68.75% of the respondents) followed by their inability to sell their agricultural produce (64.2%).

About 57% of the respondents mentioned that the COVID-19 pandemic affected their attendance of religious gatherings/prayers. Other impacts of the pandemic are related to social distancing, travel restrictions, losing friends, fear of sickness/death, and inability to attend social events (e.g., funeral, wedding, labour-sharing events). The lowest level of impact of the pandemic is manifested on unemployment, food shortage and quarantine (Figure 6).

Agricultural production and marketing of agricultural produce are affected by the COVID-19 pandemic in many countries and contexts. There is considerable uncertainty about income, poverty and food security implications of the pandemic (Hirvonen et al., 2020). Poor agrarian

households are experiencing substantial shocks related to the pandemic. It was found that farmers in Ethiopia are facing shortage of production inputs as well as higher price quotes whenever these inputs are available (Tamru et al., 2020). Likewise, it was found that some farmers in Ethiopia are facing difficulty to sell their farm produce. For instance, in a qualitative study conducted to assess the impact of COVID-19 along dairy value chain supplying the capital city, it was found that milk producer farmers are less able to sell their milk (Tesfaye et al., 2020). Consequently, the farmers had to convert their milk into butter, which resulted in low price for butter. In addition, some of the farmers reported incidences of wasted milk as a result of the difficulty they faced to sell their milk (Tesfaye et al., 2020).

Another study conducted by the International Food Policy Research Institute (IFPRI) in the country also found a decline in producer prices of vegetables due to lack of traders/buyers following the travel restrictions (Tamru et al., 2020). The same study also documented that farmers had to leave their vegetables on the field to rot due to lack of buyers. Given the COVID-19 effect on agricultural production and marketing, concerned officials and organizations should strengthen their efforts in making available scarce production inputs as well as ensure that agricultural produce reach consumers in time. Greater networking of stakeholders across the agricultural value chain is required to safeguard producers and consumers amidst the pandemic.

Social distancing measures are also affecting the social life of communities in the country. For instance, dairy producers nearby Addis Ababa were reportedly affected by social distancing measures because it resulted in low demand for milk products by shops, restaurants and other consumers (Tesfaye et al., 2020). As indicated in Figure 5, the effect of social distancing in the study area are manifested through the respondents' inability to attend religious gatherings/prayers, losing friends due to limited contact, and inability to attend social events (e.g., funeral, wedding, etc). Nicola et al. (2020) reviewed the socioeconomic implications of the COVID-19 pandemic and found that social distancing measures affected availability of labour across all economic sectors. Furthermore, social distancing was found to result in many jobs to be lost (Nicola et al., 2020). It is, therefore, important to understand the pathways through which social distancing measures can serve as an effective COVID-19 containment mechanism in countries like Ethiopia, whose population have a dense social life.

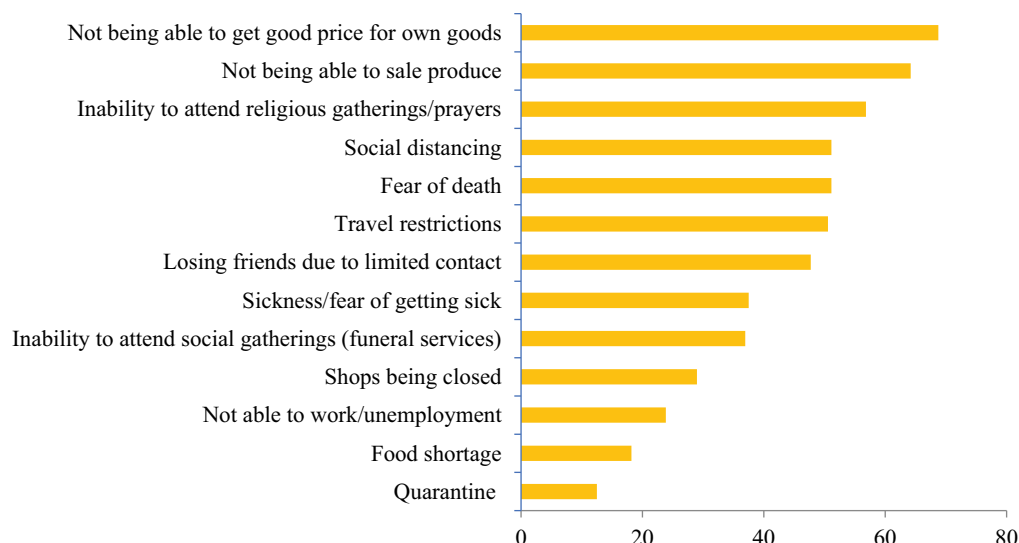
Travel restrictions, coupled with other COVID-19 containment measures, are affecting income and wealth creation in many countries (Coibion et al., 2020). In Ethiopia, such restrictions decreased the number of travellers as well as vehicles on the road, limiting people's access to their income-generating activities. Such restrictions also affected the normal flow of goods to and from the market. A recent study in China showed that unreasonable restrictions would block the outflow channels of agricultural products, hinder necessary production inputs, destroy production cycles, and finally undermine production capacity (Pu & Zhong, 2020). Likewise, a recent review conducted in low and middle income countries (LMICs) suggests that the main impact of the pandemic derives mainly from the lockdown and mobility restrictions. This is feared to result in loss of income and food insecurity among poor rural households (Béné, 2020).

Unemployment is another impact of the COVID-19 pandemic experienced in the study area. A recent study in the country showed that COVID-19 is likely to result in unemployment of many low-skilled daily labourers (Beyene et al., 2020; Burki, 2020; Geda, 2020). In particular, female workers are more vulnerable to loss of job (Burki, 2020; Geda, 2020). Unemployment and labour shortages are affecting agricultural and food markets in this period (Laborde et al., 2020).

Food shortage and quarantine are the other impact areas of the pandemic identified in this study. Although small in magnitude, some respondents fear that the pandemic will result in food shortages. As found by previous studies, COVID-19 is most directly and ruthlessly impacting access to food (Laborde et al., 2020). Taking into account that a third of the respondents faced food shortages, it is important to consider policy measures to support such households with food, for

Figure 6. Perception on the impact of COVID-19 pandemic on social life and interactions (per cent).

Note: Source: own illustration based on survey data, 2020



instance, through the PSNP. Quarantine, which is one of the control measures for COVID-19, is associated with different problems. Mental health problems like stress, anxiety and depression are the common problems among quarantined peoples (Mattioli et al., 2020).

4. Conclusion and implications

This research was conducted to assess smallholder farmers' response and impact of the COVID-19 pandemic in eastern Ethiopia. Our key findings show that many farmers in the study area practice a range of WHO recommended COVID-19 prevention and control strategies, including social distancing, hand washing, and avoiding public/large gatherings. However, the prevalence of other protective measures (wearing face mask and gloves, applying hand sanitizers) is low. Our other main finding relates to the quality of response to COVID-19 by people and institutions. We find that the respondents rated, in decreasing order of magnitude, the response of the media, family members and religious organizations as "very good". The most important impact of the pandemic is associated with household's inability to obtain a reasonable price for their agricultural produce followed by their inability to sell their agricultural products. About 57% of the respondents mentioned that the COVID-19 pandemic affected their attendance of religious gatherings/prayers. Other impacts of the pandemic are social distancing, travel restrictions, losing friends, fear of sickness/death, and inability to attend important social events. The lowest level of impact of the pandemic is related to unemployment, food shortage and quarantine.

Considering the increasing number of COVID-19 cases, our result calls for a reinforced awareness creation campaign, behaviour change communication by health extension workers and other relevant organizations, and provision of basic health and sanitation facilities in the area. Such interventions should also focus on improving the access of smallholders to Personal Protective Equipments (PPEs), such as face masks and hand sanitizers. The pandemic is being actively fought in the study area. However, since the response of neighbours, federal/regional government and some political parties was rated lower, comparatively speaking, these entities need to increase their commitments and actions to curb the pandemic and protect smallholders' livelihoods. Continued engagement with diverse media platforms, managing misinformation and development of trust is also needed to dramatically increase the spread of reliable COVID-19 related information to the wider public. Moreover, safeguarding the agricultural sector against risks and uncertainties emanating from natural and man-made causes has to be prioritized using available and innovative options, including strengthening early warning system, distributing improved/early-maturing seeds and fertilizers, providing insecticides/pesticides, linking smallholders to better market outlets, and emergency food aids through the PSNP. To this end, institutions that directly interact with the farming community, such

as agricultural extension, cooperatives and health care need to aggressively engage in protecting the livelihood sources of the farmers by planning safety measures ahead of the incidences. The result also calls for greater coordination of efforts among governmental, non-governmental, and civil society organizations operating in the study area in order to effectively and efficiently respond to the economic, social and psychological effects of the pandemic in the shortest time possible. We also highlight that further detailed and rigorous research is needed to understand the causal effect of the pandemic on the various dimensions of food security (access, availability, utilization) and poverty and its correlates. Impact of various policy measures to curb COVID-19 should also be studied on selected outcome indicators related to mental health, income, employment and other welfare indicators. Such a research should also consider covering more districts and agro-ecological zones as well as temporal and spatial variations.

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Disclosure statement

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Contributors

All researchers participated in the preparation of data collection tool. GSE, EA and HH collected primary data. MGW, GSE and CSA analysed the data, interpreted and prepared the draft manuscript. JYH, JW and AS revised the manuscript. All authors have read and approved the final version of the article.

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