Gendered Socioeconomic and Health Effects of COVID-19 in Informal Settlements in Kenya

George K. Kosimbei,
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By

George K. Kosimbei
Kenyatta University School of Economics

Jacob O. Omolo
Kenyatta University School of Economics

Gladys J. Rono
Kenyatta University School of Economics

Peter K. Musyoka
Kenyatta University School of Economics

and

Perez A. Onono
Kenyatta University School of Economics

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List of abbreviations and acronyms

AMREF	African Medical Research Foundation
ANC	Antenatal Care
COVID-19	Coronavirus Disease 2019
CWEE	Coalition for Women's Economic Empowerment and Equality
FGDs	Focus Group Discussions
GII	Gender Inequality Index
HHFA	Harmonized Health Facility Assessment
ICT	Information and Communications Technology
ICU	Intensive Care Unit
IPV	Intimate Partner Violence
KHIS	Kenya Health Information System
KIIs	Key informant interviews
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
MDAs	Ministries, Departments and Agencies
MHFL	Master Health Facility List
MMR	Maternal Mortality Rate
MSEs	Micro and Small Enterprises
MSMEs	Micro, Small and Medium Enterprises
PAYE	Pay As You Earn
PLWDs	People Living with Disabilities
PPEs	Personal Protective Equipment
RoK	Republic of Kenya
SARS	Severe Acute Respiratory Syndrome
SDG	Sustainable Development Goal
SME	Small and Medium-sized Enterprises
SPF	Social Protection Fund

SSA	Sub-Saharan Africa
TBA	Traditional Birth Attendant
TTBA	Trained Traditional Birth Attendant
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
VAT	Value-Added Tax
VAW	Violence Against Women
WHO	World Health Organization

Abstract

In March 2020, the World Health Organization (WHO) declared Coronavirus Disease (COVID-19) caused by the novel SARS-CoV-2 virus a pandemic. The pandemic was projected to leave long-lasting economic and social impacts due to disruptions of economic activities across the globe and within countries. The losses would stem from direct and indirect effects of illness and also measures adopted by governments to contain the spread of the pandemic. Africa experienced lower than expected transmissions of the virus. However, countries within the region experienced challenges related to mitigation and containment efforts. The challenges are mostly due to the recurring nature of the disease, generally referred to as waves. The Kenyan Government implemented numerous containment measures towards the spread of the pandemic. The measures required regular handwashing with soap, use of face masks in public places; use of alcohol-based sanitizers; social distancing; ban on public/social gatherings; closure of education and training institutions; restriction of movements through curfews and lockdowns; ban on international travels; closure of some businesses such as bars, restaurants, and nightclubs; and encouraging of firms to adopt remote working approach except for essential services. In many instances, the responses by the government disrupted economic activities, leading to loss of employment, income, and livelihoods. Many businesses, especially the micro, small and medium enterprises (MSMEs) in the informal economy were closed down. Businesses that continued to operate did so but at below capacity.

Heightened vulnerabilities for women were expected because their livelihoods are mainly in informal activities that require continuous daily operations. In 2020, women constituted only 36.8% of wage earners, and majority of them (68%) compared to men (39%) were in vulnerable employment. Further, women were reported to be more in sectors that highlight their traditional roles in the society where both earnings and productivity are low. Social norms also place disproportionate burden of unpaid care work on women and adolescent girls. This burden is deemed to have worsened with prolonged closure of schools, workplaces, restriction of travel and other movements, which rendered majority of household members to stay indoors. The low representation of women in formal employment, high proportion of women in vulnerable employment and occupational segregation, which confines women to care-oriented sectors with low earnings and productivity, meant that women bore a disproportionate loss of income, employment and livelihoods due to the disruptive

effects of COVID-19. The precarity of the jobs held by women and their traditional roles in the society may have also excluded majority of women from the fiscal, monetary, and social protection measures unveiled by the government to cushion citizens and businesses from the negative effects of COVID-19 pandemic. The stress and disruption caused by the pandemic increased are argued to have increased the risk of women and girls engaging in negative coping mechanisms. In 2018, about 61% of pregnant women in Kenya reportedly gave birth with the assistance of a skilled attendant. However, barriers occasioned by the COVID-19 containment measures and fear of heightened risk of infection prevented women from accessing health facilities (Oluoch-Aridi et al., 2020).

This study, therefore, sought to assess gendered socioeconomic and health effects of COVID-19 and related mitigation measures in the informal settlements in Kenya. Specifically, the study sought to establish the impact of COVID-19 on access to pre/postnatal care services and to determine the coping mechanisms employed by girls and women to mitigate the impacts of income loss due to COVID-19 pandemic. The study adopted a mixed method approach, combining desk review and a cross-sectional survey of households in four informal settlements. Primary data was through structured interviews from a randomly selected sample of 402 households drawn from Kibra and Mathare informal settlements in Nairobi City County, and Obunga and Nyawita informal settlements in Kisumu County. Additional qualitative data was gathered through FGDs with girls only, women only, and mixed groups; and Key Informant Interviews.

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Impact of COVID-19 on access to prenatal and postnatal care services

While there was access to prenatal and postnatal services in the health facilities, it was restricted due to congestion of the hospital beds by COVID-19 patients. Due to increased congestion of hospital beds by COVID-19 patients and other related cases deemed more serious, access to prenatal/postnatal services by women and girls that required admission were often advised to seek home-based care. This resulted in a change of the discharge policy by hospitals' management to even two hours for delivery patients. It is also reported that in some cases, some mothers defaulted on different vaccinations for their babies and others resorted to home based prenatal and postnatal care. This applied across the board even to the teenage mothers some of whom sought traditional birth assistance at a comparatively higher cost per delivery than their subsequent-delivery counterparts. Results reveal that a household in Obunga informal settlement was 18% more likely to access prenatal care compared to a household in Kibra informal settlement. However, there was no statistically significant difference in access to prenatal care for households in Mathare and Nyawita informal settlements compared to those in Kibra informal settlement. Despite the statistical insignificance, positive marginal effects are an indication that, on average, the probability of a household in Mathare and Nyawita informal settlements to access prenatal care was higher compared to a household in Kibra informal settlement. The results are in line with the descriptive results which showed that 82% of households in Mathare informal settlement reported no disruption of prenatal care services during COVID-19.

Coping mechanisms employed by girls and women to mitigate the impacts of income loss due to COVID-19 pandemic

Most of the households (57%) in the informal settlements lost employment with 63% of female-headed and 51% of male-headed households reporting such loss. The Loss of incomes affected most households with the difference being only in terms of the magnitude. Total loss of income was reported in 24% of the sampled households, with 27% of male-headed households compared to 21% of female-headed households being affected. Diminished income was reported by 68% of the households with a higher incidence in female-headed (70%) than in male-headed (66%) households. Overall, only 6% of all households experienced no change in income. Kibra and Obunga informal settlements reported highest incidences for total loss of incomes with 34% and 30% of households, respectively. The highest incidences of diminished incomes were in Nyawita (82%) and Mathare (70%). On the other hand, loss of employment was more pronounced in Kisumu, where about 60% of the households each in Nyawita and Obunga informal settlements experienced loss of employment compare to about 53% of the households each in Kibra and Mathare informal settlements in Nairobi.

Households reported challenges including food insecurity and inability to meet some basic needs. Overall, 16% of households experienced severe food insecurity where members of the households did not eat at all for a day or more due to lack of money or resources. Incidence of severe food insecurity was highest in Kibra (44%) informal settlement compared to the Mathare (10%) and Obunga (11%) informal settlements. More (16.3 %.) of the male-headed households compared to female-headed households (15.6%) suffered severe food insecurity across the locations, a situation attributed to the fact that more male-headed households reported total loss of incomes. Girls and women particularly could not obtain personal use products and other basic necessities including house rent. Girls and women were more exposed to sexual harassment, exploitation, and abuse as they sought support to address their needs. While young women experienced increased conflicts with their parents, married women experienced increased conflicts with their husbands due to inability to support household needs. Conflicts between young girls and their parents made some girls to opt for early marriage

The copying mechanisms adopted by households to mitigate impacts of the loss in incomes included eating less or skipping a meal; social support systems such as financial assistance from other family members, migration of a member to live with another relative, and sending some of the children to rural home to ease financial burden; begging; and early and forced marriage of a young female member. The social support systems enable households to remain financially resilient during crises. Girls aged 10-14 years reportedly engaged in child labour, hawking and begging from well-wishers. Begging was more pronounced in Kibra informal settlement, and in

households that experienced total loss of income. Children from households with older household heads were less likely to engage in begging. Adolescent girls aged 15-17 years engaged in beadwork, sale of food items within the estates, and laundry and cleaning jobs for other households. Some girls in this category were also married off. These activities expose young girls to abuse and exploitation with long-term negative consequences in their development.

Women mainly coped to income losses due to COVID-19 through hawking food items within the estates, taking food items from shops on credit, borrowed money from shylocks and digital money lenders or relocated to the rural areas with their children. Some women separated from their husbands to relieve the economic burden while others abandoned their children. Transactional sex reportedly increased among adolescents, young and older women during COVID-19. The vice was perceived as a ready source of income for food and other household needs, including rent.

On average, the probability that a female-headed household would eat less or skip a meal to mitigate income loss due to COVID-19 was higher than that of a male-headed household. The incidence of eating less or skipping a meal was higher in households that experienced loss of employment or total loss of income compared to those that experienced diminished or no change in income, and lower for households headed by a single person. By location, was highest in Mathare informal settlement and lowest in Nyawita informal settlement when compared to Kibra. This is because Mathare had the highest proportion of households reporting diminished (47%) or total loss of incomes (41.5%). Similarly, the proportion of households that reported total loss of income in Kibra informal settlement (34%) was 3.7 times that of Nyawita informal settlement (9%).

The probability that a female-headed household received financial support from another family member, and had member migrating to live with a relative was relatively higher than for male-headed households. However, a female-headed household was 9.2% less likely to have sent some children to rural home compared to male-headed households. Further, sending children home was higher for households that reported experience of severe food insecurity and a household headed by a person who separated from the spouse. The low probability of female-headed households sending some children to their rural homes may be attributed to the fact that it was hard for them to get people who are willing to provide care for their children. Households that experienced severe food insecurity are less (42.3%) likely to have received financial support hence appear to have slipped deeper into poverty. By location, households in Mathare and Obunga informal settlements were relatively more likely to receive financial support from a family member than a household in Kibra informal settlement. The probability of receiving such support in Nyawita was lower than in Kibra. Overall, migration of a member to live with another family member was more prevalent in Kibra informal settlement than in the other three study sites.

About 7% of the households interviewed experienced early or forced marriage of a young family member during COVID-19. Early or forced marriage was reported to have increased during the pandemic due to increased poverty, lack of basic needs, idleness

triggered by prolonged closure of learning institutions, peer pressure, and increased conflicts between parents and the young girls. The vice was more for households in Nyawita informal settlement compared to those in Kibra, Mathare, and Obunga. Households which experienced loss of employment during COVID-19 had a higher probability of reporting early or forced marriage.

Use of transactional sex by adolescents, young women and older women to cope with income loss due to COVID-19 increased. The vice was embraced as an alternative means for sourcing money mostly to purchase food and meet other basic household needs, including rent. Among adolescent and young girls, the vice is blamed on widespread “sponsor” mentality and peer pressure. Some young women also submitted to exploitative and risky sexual activities to be enlisted in the social assistance programmes unveiled by the government during COVID-19 as well as the sexual pressure from landlords to write off cumulative rent arrears.

Recommendations

To ensure that there is access to prenatal and postnatal health services, members of households and the general community should be sensitized that women of reproductive age can still access prenatal and postnatal health services, even during curfews and restricted movements without having to experience police brutality. Such sensitization can be done through digital and social media platforms. Also, partners should utilize the community strategy for demand creation and provision of authorized services at the service delivery points. To increase access to prenatal and postnatal health services, the ministry of health should come up with postnatal care follow-up protocol, especially during a pandemic such as COVID-19.

Government departments of gender, both at national and county government levels, in partnership with private institutions and non-governmental organizations should facilitate economic empowerment programmes that generate employment opportunities with stable incomes for women. Business development programmes and financial products targeted at women entrepreneurs will be critical for effective recovery. The study showed that most of the female heads of households were engaged in business activities that cannot withstand shocks and were severely affected by the disruptions occasioned by COVID-19.

Government interventions to cushion socioeconomic vulnerable households during crises should factor in gender considerations guided by the factors that determine household vulnerabilities in each location. The survey revealed that vulnerabilities of different gender vary from one location to another.

Government systems for enlisting beneficiaries to social protection programmes should be open and transparent, and should be free from harm, manipulations, and abuse of the rights of the vulnerable girls and women. Further, early response to loss of livelihoods and income can avert negative coping mechanisms that can otherwise lead to increased vulnerabilities for women and increased inequalities.

During crises, such as those experienced during the COVID-19 pandemic, the government, through the ministry of education, should take necessary considerations and actions to ensure that all students are kept busy. Programmes that enhance continuous leaning for school and college going girls can avert early marriage and the negative consequences on girls and young women.

County government departments for gender, youth and cultural services, through partnerships with community based organizations and religious institutions, should design and implement sensitization forums targeted at girls and young women. The forums should aim at influencing the attitudes of girls and young women on early marriage and transactional sex.

1. Background

Introduction

Coronavirus Disease 2019 (COVID-19), a highly contagious respiratory disease caused by the novel SARS-CoV-2 virus, was officially declared a pandemic by the World Health Organization (WHO) in March 2020 (Cucinotta & Vanelli, 2020). Due to its disruptive effects, it was projected that the pandemic would leave long-lasting economic and social impacts from, not only the direct and indirect effects of illness, but also the measures adopted by governments to contain the spread of the virus. Despite the lower than expected transmission in Africa, countries within the region continue to contend with challenges in their containment and mitigation efforts. The challenges are mainly due to the cyclic nature of the disease, commonly referred to as waves.

The Kenya Government implemented several measures to mitigate the spread of COVID-19, and cushion the citizens against the attendant employment, income, and livelihood losses. The containment measures included imposition of lockdowns and curfews, ban on international travels, closure of education and training institutions; ban on public gathering, closure of some businesses such as bars and restaurants, and encouraging firms to adopt remote working approach except for essential services. The government also emphasized on hygiene-oriented measures such as wearing of face masks, washing of hands and social distancing. The government also implemented a number of fiscal, monetary, and social protection measures to cushion the citizens and businesses from the negative effects of the COVID-19 pandemic.

The disproportionate impact of COVID-19 pandemic on women and girls is well documented in literature. According to the Coalition for Women's Economic Empowerment and Equality (CWEEE, 2020), overrepresentation of women in the informal sector heightens their vulnerabilities during crises. Many women engage in small businesses that require continuous daily operations. In 2020, women constituted only 36.8% of wage earners and majority of them (68%) compared to men (39%) were in vulnerable employment (KNBS, 2021). Further, the KNBS (2021) reported that women are mostly in sectors that highlight their traditional roles in the society, where both earnings and productivity are low. These include agriculture (70%), human and social activities (58%), and activities of households as employers or domestic services (61%). Social norms also place disproportionate burden of unpaid care work on women and adolescent girls (CWEEE, 2020). This burden is deemed to have

worsened with prolonged closure of schools, workplaces, and restriction of travel and other movements, which caused majority of household members to stay indoors.

The low representation of women in formal employment, high proportion of women in vulnerable employment, and occupational segregation, which confines women to care-oriented sectors with low earnings and productivity, meant that women bore a disproportionate loss of income, employment and livelihoods due to the disruptive effects of COVID-19. The precarity of the jobs held by women and their traditional roles in the society may have also excluded majority of women from the fiscal, monetary, and social protection measures unveiled by the government to cushion citizens and businesses from the negative effects of the COVID-19 pandemic. Pinchoff et al. (2020) also contend that risk of violence and exploitation of women and girls increased during the pandemic. They argue that stress and disruption caused by the pandemic increased the risk of women and girls engaging in negative coping mechanisms such as child/early/forced marriage and survival sex. Ordinarily, about 61% of pregnant women in Kenya give birth with the assistance of a skilled attendant (Kenya National Bureau of Statistics [KNBS], 2018). However, barriers occasioned by the COVID-19 containment measures and fear of heightened risk of infection prevented women from accessing health facilities (Oluoch-Aridi et-al., 2020).

Studies conducted in the early periods of the pandemic involved extensive theorizing of the potential impacts with only a few empirical studies to analyse the impact of COVID-19 on poverty, health, and the socioeconomic status in informal settlements in Kenya. Nafula et-al. (2020) used the 2015/2016 Kenya Integrated Household Budget Survey (KIHBS 2015/2016) data set to estimate the impact of COVID-19 on poverty using a microsimulation approach. Pinchoff et al. (2020) assessed the short-term economic, social, and health effects of COVID-19 and related mitigation measures among a longitudinal cohort of households sampled from five informal settlements in Nairobi. Barasa et al. (2020) assessed the surge in capacity of the Kenya health system in terms of general hospital and ICU beds in the face of the COVID-19 pandemic. Oluoch-Aridi et al. (2020) investigated the effects of COVID-19 and related mitigation strategies on access to health care services in informal settlements using primary data collected from sampled respondents in informal settlements in Kenya, while Omolo (2020) assessed the effect of COVID-19 containment measures implemented by the Kenya Government on the informal economy, and appropriateness of the COVID-19 economic stimuli to workers and informal economy operators.

Only a few of the aforementioned studies used primary data. However, none of the studies analysed the gendered socioeconomic and the health effects of COVID-19 on households living in informal settlements using survey data collected during the COVID-19 period. In addition, no study attempted to analyse and document the coping mechanisms adopted by girls and women in households that suffered the devastating loss of income during the pandemic and the gender-based differential access to the COVID-19 stimulus packages implemented by the government. Although the study by Pinchoff et al. (2020) reported some gendered impacts of the pandemic on poverty and violence on women, respondents were restricted to households with

adolescent girls only, which is not representative of the socioeconomic structure of households in informal settlements in Kenya. Understanding the use of risky and negative coping mechanisms adopted by girls and women is important in assessing actual vulnerabilities exacerbated by COVID-19. This is critical given that increases in risky and negative coping mechanisms among women and girls contradict the aspirations in Sustainable Development Goal (SDG) 5 on gender equality and women empowerment. The goal targets elimination of all harmful practices, such as child, early, and forced marriage; all forms of violence against women and girls both in the public and private spheres, including sexual and ot her types of exploitation (United Nations, 2015).

This study aimed at building on the completed studies, and further analysed and documented the gendered socioeconomic and health effects of COVID-19 in informal settlements in Kenya using mixed methodologies.

Study objectives

The primary objective of the study was to assess the short- and medium-term economic, social, and health effects of COVID-19 and related mitigation measures in the informal settlements in Kenya. The specific objectives are:

(i) Establish the impact of COVID-19 on access to prenatal and postnatal care services.

(ii) Determine the coping mechanisms employed by girls and women to mitigate the impacts of income loss due to the COVID-19 pandemic.

Methodology

The study adopted a mixed methods approach, combining desk review of reports and secondary data together with cross-sectional survey of households in four informal settlements. The study sites were Kibra and Mathare informal settlements in Nairobi City County, and Obunga and Nyawita informal settlements in Kisumu County. The two counties were selected purposively because Nairobi City County suffered intense restrictions and containment measures, whereas Kisumu County was under relatively flexible restrictions and containment measures both in terms of design and implementation.

A sample of 402 households was drawn, and an equal allocation of 100 applied across three study sites (Mathare, Obunga, and Nyawita informal settlements) except in Kibra informal settlement where 102 households were drawn. Primary data was also gathered through Key informant interviews (KIIs) and Focus Group Discussions (FGDs). The FGDs were conducted with women only, adolescent girls only, and mixed group in each of the four study sites. The mixed group FGDs comprised community leaders, local administration, youth leaders, women leaders, and People Living with Disabilities (PLWDs). The key informant interviews (KIIs) and focus group discussions were used to get more information and clarify experiences of households during the pandemic.

Fifteen key informants were captured. They were from Ministry of Labour, Ministry of Health, Nairobi City County, Kisumu County, National Council for Population and Development, National Gender and Equality Commission, United Nations Population Fund, Local NGOs working in the informal settlements, and African Medical Research Foundation (AMREF) Health Africa. The women only FGD had a total of 39 respondents while the adolescent girls only FGD had 38 participants. The mixed group FGD had 39 respondents, 60% of whom were females. In addition, secondary data from the Kenya Health Information System (KHIS) and document reviews was also used in the study.

Descriptive and inferential analytical approaches were used. Inferential analysis was based on logistic regression model:

$$P(y = 1|X|) = F(X^I B) = \frac{e^{X^I B}}{1 + e^{X^I B}}$$

Where: ***y*** is a binary dummy variable indicating that the household used the specific coping strategy or accessed a given reproductive health service during COVID-19; ***X*** is a vector of independent variables including gender of the household head, age of household head, marital status of the household head, household size, loss of income, and loss of employment in the household. Marginal effects derived from the estimated models were interpreted and policy implications drawn from them.

2. Review of literature

Gender policy and legal framework

Kenya has the policy and legal framework that anchor efforts to promote gender equality in the country. The Sessional Paper No. 2 of 2019 *National Policy on Gender and Development* seeks to create a just, fair and transformed society free from gender-based discrimination in all spheres of life. The goal of the policy is to achieve gender equality and women's empowerment in national development. The policy advocates for the integration of gender equality and women's empowerment into sectoral policies, planning, and programming.

Further, the Constitution of Kenya, 2010, creates a platform for gender equality and non-discrimination. Such provisions include:

- Article 10 of the Constitution on national values and principles of governance identifies equality, equity, inclusiveness, and non-discrimination as the key principles that anchor gender equality.

- Article 27(1) of the Constitution, which provides that every person is equal before the law and the right to equal protection and benefit of the law.

- Article 27(3) granting women and men the right to equal treatment including the right to equal opportunities in political, social, economic, and cultural spheres.

- Article 27(4) of the Constitution outlaws discrimination on any basis including sex, marital status, pregnancy, and dress.

- Article 27(6) of the Constitution obliges the government to take legislative and other measures including affirmative action to redress disadvantages suffered by individuals and groups because of past discrimination.

- Article 27(8) sets a threshold for gender equality, which requires that not more than two-thirds of the members of elective or appointive bodies are of the same gender.

At the sectoral level, the Employment Act provides the legal framework for ensuring gender equality and non-discrimination in employment.

- Section 5(3) of the Employment Act prohibits discrimination in employment while Section 5(4) of the Act require an employer to pay his/her employee equal remuneration for work of equal value.

- Section 6 of the Act prohibits sexual harassment.

The implication is that any discrimination in employment and pay, preferential treatment or threat in employment in exchange for sexual favours contravenes the labour laws.

Kenya continues to report slow progress in closing the gender gap and enhancing women's empowerment in the social, economic, and political spheres despite the existence of the policy and legal framework on gender equality and women's empowerment. Kenya ranked 109th out of 153 countries in the 2020 Global Gender Gap ranking. It ranked position 137 out of 189 countries using the Gender Inequality Index (GII) rankings by the United Nations Development Programme (UNDP). Furthermore, only 29% of Kenya's women are considered empowered, implying that 71% of the women are disempowered.[1] Women in urban areas are nearly twice (40%) as likely to be empowered compared to those in the rural areas (22%). Also, younger women show higher levels of empowerment compared to older women. In this respect, 30% of women aged 15-19 are empowered compared to 29% of women aged 20-39 and 24% of women aged 30-49.[2] Furthermore, women from high-income households are more empowered than those from low-income households. According to KNBS (2020), only 3% of women from low-income households felt empowered compared to 24% and 53% of women from middle- and high-income households, respectively. Also, women living in households headed by men are slightly more empowered (30%) than those living in households headed by women (28%).

Gender disparities also exist in Kenya’s employment landscape. The KNBS (2021) report shows that women constituted only 36.8% of wage earners in 2020, slightly over the 2019 rate of 35.5%. Similarly, women are underrepresented in most sectors of formal employment requiring a high level of education or specialized skills. These include financial and insurance activities (39%); information and communication (36%); professional, scientific and technical activities (29%); real estate (23%); and administration and support services (10%).[3] In addition, women spend 11.1 hours of care work per day compared to 2.9 hours for men.[4] Furthermore, only 6% of women work in small industries compared to 13% for men, and only 23% of women are in the service sector.[5] This means that majority (70%) of women are in agriculture with low levels of job security, productivity, and earnings. The gender gap in employment is worsened by the gender wage gap, which stood at 68% in 2019, implying that women earned Ksh68 for every Ksh100 earned by men for doing similar work.[6]

Measures implemented to mitigate the negative effects of COVID-19

The Kenya Government implemented a number of behavioural, fiscal, monetary, and social protection measures to contain the spread of COVID-19 and also cushion the citizens and businesses against the negative effects of the pandemic.

Table 1: COVID-19 measures

a.	***The behavioural measures to contain spread of COVID-19***
	• Suspension of learning in education and training institutions. • Suspension of international and domestic passenger flights except for evacuation planes. • Nationwide curfew and restriction of movement across specific counties that had high COVID-19 • infection rates. • Closure of workplaces and businesses except for essential service areas. • Ban on public gatherings including regulation of in-person meetings. • Hygiene-oriented measures: hand washing, wearing of face marks, physical distancing, and use of hand sanitizers. • The number of passengers in public service vehicles regulated at 60% of the vehicle capacity. • Imposition of quarantines and isolation for COVID-19 patients. • The measures were varied and/or relaxed from time to time depending on the COVID-19 positivity • rates.

b.	***The COVID-19 based fiscal measures implemented by the government***
	• 100% tax relief to citizens earning Ksh24,000 and below. • Reduction in the capping of pay as you earn (PAYE) from 30% to 25%. • Reduction of the turnover tax rate from 3% to 1% for all Micro, Small and Medium Enterprises (MSMEs), and reduction of value-added tax (VAT) from 16% to 14%. • Tax relief for various pharmaceutical products and medical equipment was also implemented. • The government also ordered immediate payment of verified pending bills by Ministries, Departments and Agencies (MDAs). Some of the tax measures, such as reduction in PAYE, turnover tax, and VAT were reversed effective 1 January 2021. • The government allocated Ksh.40 billion (0.4% of the GDP) for COVID-19 health sector-related expenditure in the 2019/2020 financial year budget. This was to enhance surveillance, laboratory services, the establishment of isolation units, and purchase of equipment and supplies, and communication. • In the 2020/2021 fiscal year, the government set aside Ksh53.7 billion towards the 8-point COVID-19 stimulus package. (i) Rehabilitation of access roads, footbridges and other public infrastructure through a public works programme using local labour and construction materials. (ii) Hiring of additional 10,000 teachers and 1,000 information and communications technology (ICT) interns to support digital learning; and the acquisition of 250,000 locally fabricated desks.

continued next page

Table 1 Continued

b.	***The COVID-19 based fiscal measures implemented by the government***
	(iii) Allocation of Ksh10 billion to fast-track payment of outstanding VAT refunds and other pending bills, and an additional Ksh3 billion seed capital for SME Credit Guarantee Scheme. (iv) Hiring additional 5,000 health workers and expansion of bed capacity in public hospitals. (v) Supply of farm inputs to 200,000 small scale farmers, and an allocation to support horticultural farmers to access international markets. (vi) Support to the tourism sector through the renovation of facilities, employment of community scouts and support to community conservancies. (vii) The employment of 270,000 young people at a daily wage of Ksh455 under the Kazi Mtaani programme. (viii) Support to the manufacturing sector under the "Buy Kenya Build Kenya" initiative. • In the 2021/2022 fiscal year, the government allocated Ksh45 billion for COVID-19 related • spending including for vaccines roll-out, enhancement of access to affordable medical care, and a budgetary provision to cushion vulnerable groups. • For ***Social Protection*** - The government also boosted the Social Protection Fund (SPF) by Ksh10 billion. • The monetary policy actions implemented targeted increasing liquidity by commercial banks, lowering the cost of borrowing and easing the burden of loan repayments on borrowers.

Review of the empirical literature

In this section, this study reviews empirical literature relevant to the gendered short- and medium-term economic, social and health effects of COVID-19 and related mitigation measures in the informal settlements in Kenya. Nafula et al. (2020) estimated the loss of income and increase in poverty due to income losses triggered by COVID-19 and also analysed the effects of government interventions adopted to cushion Kenyans from drifting into poverty, utilizing the KIHBS 2015/2016 data set and a microsimulation approach. The study established that poverty increased significantly, thus affecting income distribution. According to the study, the losses in both labour and non-labour incomes was due to loss in employment and/or reduced working hours following the lockdown and cessation of movement measures implemented across the country. The study found tax relief measures were more effective in reducing poverty since they have a wider coverage compared to enhanced social protection measures, which are restricted to a select group among the poor. Tal and Geraldine (2020) conducted a review of existing literature to identify the secondary impacts of COVID-19 on women and girls in sub-Saharan Africa (SSA). The reviews provided evidence suggesting that women and girls in SSA would suffer from extreme and multifaceted negative secondary impact of the COVID-19 crisis. These include higher poverty rates; an increase in unplanned pregnancies; a surge in school dropout rates; and child labour, particularly amongst adolescent girls. Other impacts are loss of income and reduced financial empowerment;

increased household work; reduced access to health care; increased maternal deaths; greater food insecurity and malnutrition; and inadequate access to water, sanitation, and hygiene. However, the two studies reviewed did not interrogate the gendered effects of COVID-19 in the informal settlements, and also did not utilize qualitative data to understand the dynamics around gender at the household level.

In another study, Pinchoff et al. (2020) assessed the short-term economic, social, and health effects of COVID-19 and related mitigation measures among a prospective, longitudinal cohort of households sampled from five informal settlements in Nairobi. The informal settlements surveyed were Kibra, Mathare, Kariobangi, Dandora, and Huruma. The study found that the probability of women reporting skipping meals was higher than men and that women who are divorced, widowed or separated were more likely to skip a meal than married ones. The study also found that the probability of men skipping meals increased with household sizes. While there was no reported difference in the probability of skipping meals between women and men in April-June 2020, the probability of skipping a meal increased over time, indicating worsening food insecurity with the COVID-19 pandemic. Further, the probability of reporting skipping a meal was higher by 15% for those who completely lost income, whether men or women. While the study confirms that women experienced more food insecurity than men and that the impact was higher for those who had completely lost incomes, the analysis did not establish the coping mechanisms that were applied by the women to overcome the strains from income losses, deepening food insecurity as well as inability to provide basic needs for the individual and family. How such coping mechanisms were employed across different socioeconomic groupings can be important in assessing the actual vulnerabilities in different categories of women.

Barasa et al. (2020) conducted a study to assess the surge capacity of the Kenyan health system in terms of general hospital and intensive care unit (ICU) beds in the face of the COVID-19 pandemic using data from the master health facility list (MHFL), the harmonized health facility assessment (HHFA) and a survey from the Kenya Health Federation on the number of ICU beds and ventilators. The study estimated four measures of hospital surge capacity nationally and for all the 47 county governments that included hospital bed surge capacity, ICU bed surge capacity, hospital bed tipping point, and ICU bed tipping point. The results revealed that the capacity of Kenyan hospitals to absorb increases in COVID-19 caseload is constrained by the availability of oxygen, with only 58% of hospital beds with oxygen supply. The study also found substantial variation (12% and 145%, respectively, in Tharaka Nithi and Trans Nzoia counties) in hospital bed surge capacity across counties and that the country faces substantial gaps in ICU beds and ventilator capacity. At the time, Kenya needed an additional 1,511 ICU beds and 1,609 ventilators to 374 ICU beds and 472 ventilators to absorb caseloads due to COVID-19 (Barasa et al., 2020). The study did not analyse the effects of COVID-19 on socioeconomic status and sexual and reproductive health but revealed the implications of COVID-19 on the supply side of health care service delivery. In another study, the utilization of maternal health care services during the COVID-19 was analysed by Temesgen et al. (2021). The study was conducted in West Shoa Zone,

central Ethiopia and it used a community-based cross-sectional study conducted among 844 pregnant women or those who gave birth in the last six months before the study using a logistic regressions technique. The study found that the prevalence of maternal health service utilization was low. Maternal educational status, distance from the health facility, monthly estimated income, fear of COVID-19 infection, requirement to request permission to visit a health facility from spouses, and obligation to practice COVID-19 prevention measures were found to be significantly associated with maternal health service utilization. In Kenya, Ombere (2021) studied access to maternal health services by expectant or mothers who gave birth during COVID-19 pandemic in Kilifi County. The study found that fear of infections and lack of personal protective equipment (PPEs) led to a decrease in the utilization of maternal health services among the child-bearers in Kilifi County. It also found low utilization of antenatal, labour and delivery and postnatal services, leading to an increase in traditional midwife-attended births. Kotlar et al. (2021) assessed the impact of the COVID-19 pandemic on maternal and perinatal health. A scoping review was conducted to compile evidence on the direct and indirect impacts of the pandemic on maternal health and provide an overview of the most significant outcomes. The study results showed that pregnant individuals were at a heightened risk of more severe symptoms than those who are not pregnant. Severe increases in maternal mental health issues, such as clinically relevant anxiety and depression were also reported. It also showed that domestic violence spiked during COVID-19, prenatal care visits decreased and healthcare infrastructure was strained. The results also showed that women were more likely to lose their income due to the pandemic than men, and working mothers struggled with increased childcare demands.

Oluoch-Aridi et al. (2020) investigated the effects of the COVID-19 pandemic and mitigation strategies on access to health care and maternity services by women in informal settlements in the Embakasi area of Nairobi City County. The study adopted qualitative methods using in-depth interviews to assess women's experiences of maternity care during the COVID-19 period and the impact of the COVID-19 mitigation strategies such as lockdowns and curfews. The study revealed that there was high awareness of the symptoms and preventive measures for COVID-19 amongst women in informal settlements. The study also found the women's perceptions of risk to themselves to be high, whereas risk to family and friends, and their neighbourhood was perceived to be low. Less than 51% of women interviewed reported reduced access to maternal health services due to fear of contracting COVID-19, de-prioritization of health care services, economic constraints, and psychosocial effects. Up to 51% of the respondents perceived improvements in quality of care due to short-waiting times, hygiene measures, and responsive health personnel, particularly for outpatient services.

Omolo (2020) assessed the effect of COVID-19 containment measures implemented by the Kenya Government on the informal economy, and the appropriateness of the government-financed COVID-19 stimulus package to workers and operators in the informal economy using an evaluative methodology. The study established that restricted movements, curfews, in-country travel bans, border closures, closure of workplaces and requirements for physical distancing created demand and supply

shocks in the informal economy with a disproportionate effect on women-owned micro and small enterprises (MSEs). The study also found that the informal economy workers and entrepreneurs were generally excluded from the first set of fiscal, monetary and social insurance measures implemented by the government. Being a rapid assessment, the study by Omolo (2020) was not based on empirical evidence.

Amuyunzu-Nyamongo and Ezeh (2005) explored informal support mechanisms used by the urban poor in dealing with three main challenges: lack of food, illness, and bereavement. This qualitative study focused on women's experiences with person-centred maternity care amongst women living in the informal settlements in the Embakasi area in Nairobi City, Kenya. The study area had an estimated population of almost one million people, mostly low-income housing and informal settlements. Residents in Embakasi experience widespread poverty and high unemployment and belong to the lowest wealth quintile in Kenya. The health system consists of both primary public health centres and several private health facilities and mission health facilities. The main referral health facility is a secondary maternity hospital. The findings revealed that community members, despite their crippling poverty, extend support to others when faced with serious problems that go beyond what may be considered general or commonplace. The study makes a strong case for the development and implementation of public safety nets accessible to the poorer segments of the urban population.

Winter et al. (2020) empirically explored associations between women's experiences of intimate partner violence (IPV) and their physical and mental health. Data for this study were collected in August 2018 in Mathare Valley informal settlement in Nairobi, Kenya. A total of 550 randomly-selected women participated in surveys; however, analyses for this study were run on a subpopulation of the women (n = 361). Multivariate logistic regressions were used to investigate the link between psychological, sexual, and emotional IPV and women's mental and physical health. Results suggest that while some socioeconomic, demographic, and environmental variables were significantly associated with women's mental and physical health outcomes, all types of IPV emerged key correlates in this context. In particular, women's experiences of IPV were associated with lower odds of normal-high physical health component scores (based on SF-36); higher odds of gynaecological and reproductive health issues, psychological distress (based on K-10), depression, suicidality, and substance use. Findings from this study suggest that policies and interventions focused on prevention and response to violence against women (VAW) in informal settlements may make critical contributions to improving health for women in these rapidly growing settlements.

Corburn and Karanja (2014) studied the inter-relationships between inadequate sanitation and disease, social, economic, and human rights for women and girls, who we show are most vulnerable from poor slum infrastructure. They used household survey, spatial mapping and qualitative focus group data gathered in partnership with residents and non-governmental organizations in the Mathare informal settlement in Nairobi, Kenya. All data interpretation included participation with local residents and organizations. The study concluded that complex informal settlements require relational and context-specific data gathering and analyses to understand the multiple determinants of health, and to inform appropriate and effective healthy city interventions.

3. Findings and discussions

Impact of COVID-19 on access to prenatal and postnatal care services

Globally, maternal health outcomes have seldom improved despite improvements in other health indicators. Kenya made very limited progress towards achieving SDG 3.1 on reducing the global maternal mortality ratio to less than 70 per 100,000 live births. The latest Kenya Demographic and Health Survey dated 2014 reported a national maternal mortality rate (MMR) of 362 maternal deaths per 100,000 live births, an improvement from 488 recorded in 2008, although the difference was not statistically significant. Kenya also faces a high burden of teenage pregnancies and motherhood with a national teenage pregnancy prevalence rate of 18% (National Council for Population and Development, 2020).

The proportion of children born in health facilities (hospitals, health centres, dispensary/clinics) improved significantly to 65.3% in 2015/16 KIHBS compared to 39.1% reported in the 2005/06 KIHBS. In rural areas, the proportion of children born at home was 40.7% compared to 13.3% in urban areas. Nationally, 31.3% of the children were delivered at home, an improvement from the 53.9% of children recorded in the 2005/06 KIHBS. The county with the lowest proportion of children born at home was Kirinyaga at 3.8%, while Wajir, Mandera, Samburu, and Marsabit had over 70% of the children born at home. Kirinyaga, Nyeri, and Kisii counties recorded over 90% of children born in a heath facility. Assistance during delivery by trained medical personnel is crucial in ensuring safe delivery. In the absence of such personnel, pregnant women often rely on themselves or get assistance from traditional birth attendants, friends, and relatives among others. Overall, the proportion of births assisted by trained medical personnel (doctors, mid wife/nurses) improved from 39.0% in 2005/06 KIHBS to 70.2% in 2015/16 KIHBS. The proportion of children born with the assistance of trained medical personnel in urban areas was 87.5% compared to 61.1% in rural areas. Counties with over 90% of the deliveries assisted by trained health personnel included; Mombasa, Nyeri, Kirinyaga, Murang'a, Kisii, and Nairobi City. In contrast, Wajir and Mandera counties had less than 30% of the children born with the assistance of trained medical personnel. Turkana County had the highest proportion of self-assisted births at 34.5%. The proportion of children delivered with

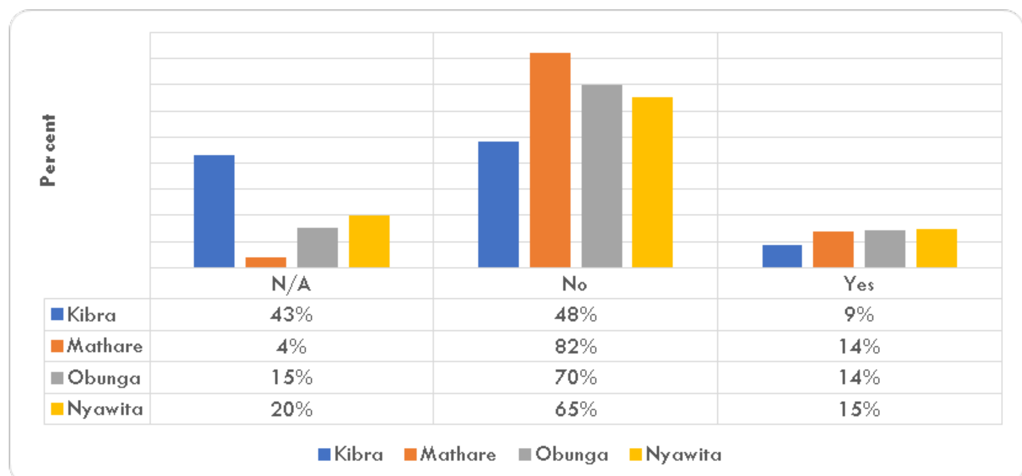
the assistance of a traditional birth attendant (TBA and TTBA) in rural areas was 25.6% compared to 7.8% in urban areas. Wajir, Mandera, and Samburu counties had over 60% of the births assisted by a traditional birth attendant.

Ensuring pregnant women and mothers receive key maternal health interventions has been shown to be both effective and cost-effective in reducing maternal mortality. However, coverage with key maternal health indicators in Kenya is still low, a situation that must have been made worse by COVID-19. For example, in 2014, only 58% of pregnant women attended four or more antenatal care (ANC) visits, only 61% of births were delivered in a health facility, and only 51% of women aged 15-49 had a postnatal check-up in the first 48 hours after birth. Effective coverage with key maternal and child health interventions has been estimated to be 50.9% (United Nations Population Fund [UNFPA], 2019). While there was access to prenatal and postnatal services in the health facilities, it was restricted due to the congestion of the hospital beds by COVID-19 patients (Key Informant Interviews and Focus Group Discussions). This made some of the hospital management change the discharge policy to even two hours for delivery patients.

Descriptive statistics

Descriptive results for the survey data collected from households revealed service disruption for prenatal care services (Figure 1).

Figure 1: Distribution of respondents reporting disruption of prenatal care services



	N/A	No	Yes
Kibra	43%	48%	9%
Mathare	4%	82%	14%
Obunga	15%	70%	14%
Nyawita	20%	65%	15%

Source: Household Survey Data (2021).

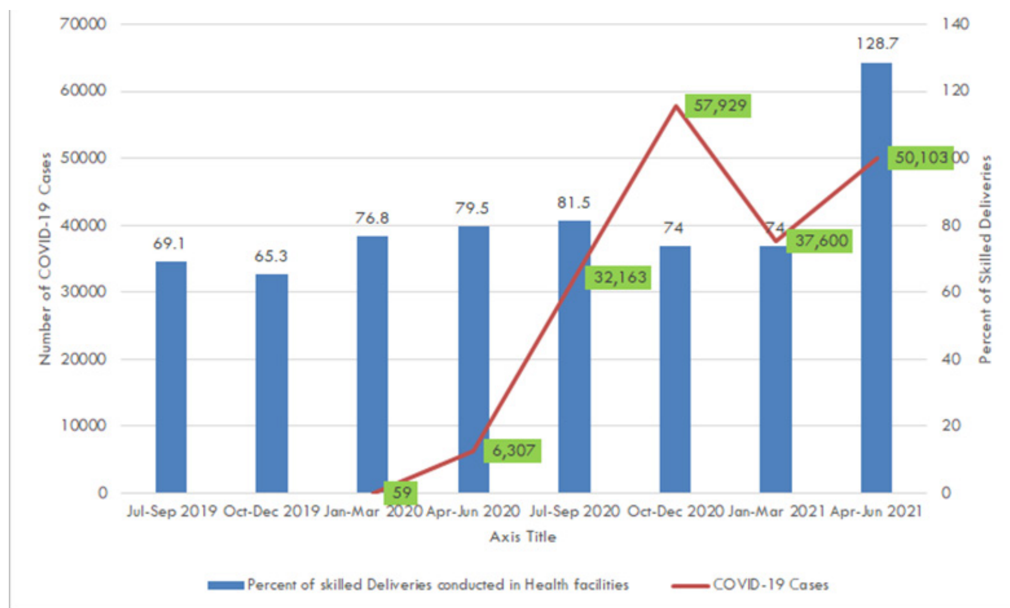
Some 15% of respondents comprising of individuals within the households in Nyawita reported service disruption for prenatal care services compared to Obunga and Mathare's 14% each. Kibra had the lowest proportion at 9%. The lower rates for service disruption

in all the sites reveal that there was an element of not being able to access prenatal and postnatal services attributed to the COVID-19. Managing the pandemic at the facility level meant that resources were directed to it, impeding service delivery in other areas.

On the other hand, survey data revealed that there were very low incidences of service disruption for pregnancy complications (<3%) in all the study sites. Pregnancy complications include high blood pressure, gestational diabetes, preeclampsia, preterm labour, miscarriage, anaemia, infections, and breech position among others.

Secondary data on the proportion of skilled deliveries conducted in health facilities reveals that COVID-19 may have affected the provision of skilled delivery services (Figure 2).

Figure 2: Skilled deliveries conducted in health facilities and COVID-19 cases

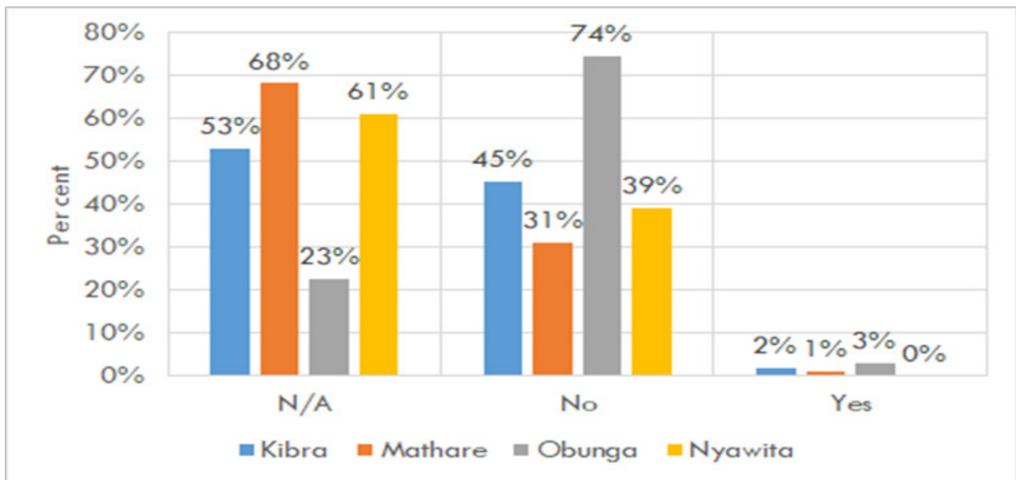


Source: Kenya Health Information System (2021) https://ourworldindata.org/coronavirus/country/kenya

Figure 2 reveals that there was a decline in the proportion of skilled deliveries from 81.5% to 74% from October to December 2020 compared to July to September 2020, corresponding to the sharp rise in the number of COVID-19 cases to 57,929 during the same period. The pattern reveals that increases in COVID-19 cases lead to a reduction in the utilization rates of prenatal and postnatal care services in health facilities in Kenya.

The decline in prenatal and postnatal care services may be attributed to the second wave of COVID-19 that increased fear of accessing hospital services (Key Informant Interviews). In addition, the decline could also be attributed to curfew and cessation of movement, meaning that skilled birth attendance was affected with media reports of increased deaths due to complications (Key Informant Interviews). Skilled birth attendance was on the decline because it also required contact, which was withdrawn due to lack of PPEs. Survey data collected also revealed service disruption for prenatal care services, as presented in Figure 3.

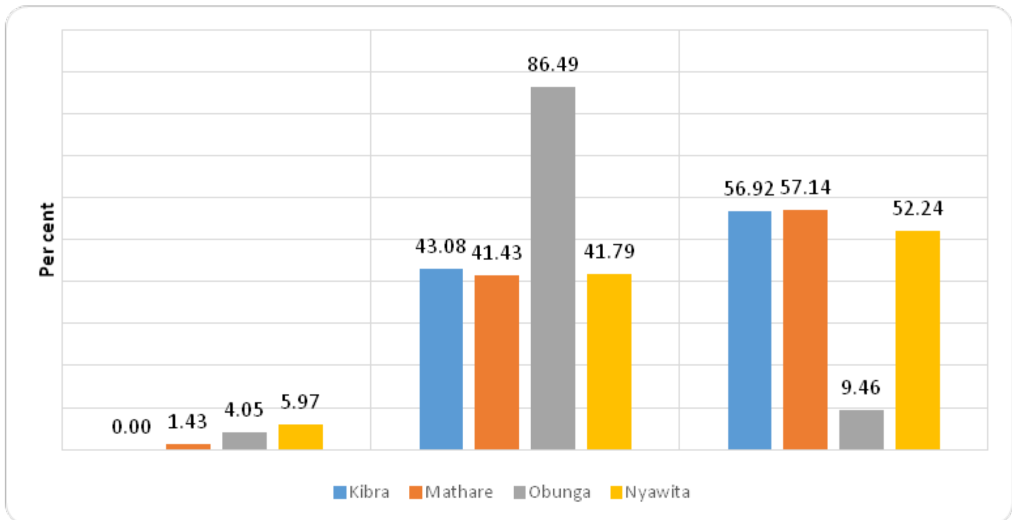
Figure 3: Reporting service disruption for treatment for pregnancy complications



Source: Household Survey Data (2021).

Obunga had the highest rate at 3% with Nyawita reporting 0%. Kibra respondents reported 2% disruption, whereas Mathare had only 1%. This implied that majority of women with pregnancy complications were able to access the much-needed attention and care at the health care facility during the pandemic. This can be explained by the fact that majority of pregnant women shied away from visiting the facility as seen above and therefore the few that visited health care facilities with complications were handled with urgency it deserved.

Figure 4: Distribution of respondents reporting disruption to child/infant clinic



Source: Household Survey Data (2021).

In Kibra, Mathare, and Obunga informal settlements, majority of households reporting disruption of infant/child clinic services were female-headed at 58%, 7%, and 8%, respectively (Table 2).

Table 2: Distribution of households reporting disruption of infant/child clinic by gender

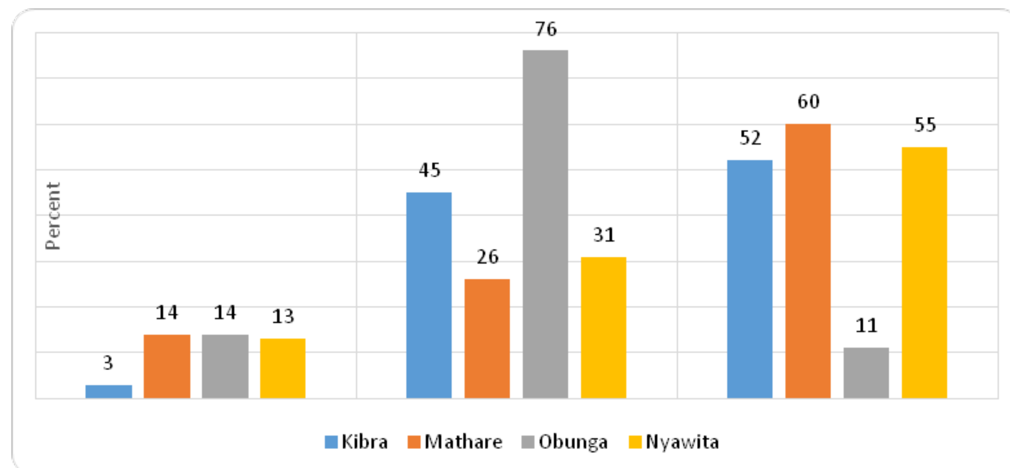
Study site	Male-headed		Female-headed	
	Obs.	%	Obs.	%
Kibra	5	20.00	23	57.50
Mathare	0	0.00	1	6.67
Obunga	0	0.00	3	7.89
Nyawita	3	9.09	1	2.94

Source: Household Survey Data (2021).

However, in Nyawita informal settlement, male-headed households were the majority of those reporting disruption of infant/child clinic services during COVID-19.

There was also some disruption of immunization of infants and children across all the study sites (Figure 5). However, as the results show, the proportion of households reporting disruption of immunization services was minimal.

Figure 5: Disruption of immunization of infants/children



Source: Household Survey Data (2021).

Mathare and Obunga informal settlements had the highest proportion of households reporting disruption of immunization services at 14% each. Kibra informal settlement had few households reporting disruption of immunization services at 3%, while households in Nyawita informal settlement reporting disruption of immunization services stood at 13%.

Table 3: Distribution of households reporting disruption of immunizations services

Study site	Male-headed		Female-headed	
	Obs.	%	Obs.	%
Kibra	1	4.00	1	2.50
Mathare	8	14.55	2	13.33
Obunga	5	14.71	5	13.16
Nyawita	5	15.15	4	11.76

Source: Household Survey Data (2021).

In all the study sites, male-headed households were the majority of those reporting disruption of immunization services at 4% in Kibra informal settlement and 15% in each of the other sites, namely, Mathare, obunga, and Nyawita informal settlements.

Summary of the results from the household survey are reflective of the views expressed by various key informants. Key informants reported that there was a decline in prenatal and postnatal care services, which may be attributed to the second wave of COVID-19 that increased fear of accessing hospital services (Key Informant Interviews). In addition, the decline could also be attributed to curfew and cessation of movement, meaning that skilled birth attendance was affected with media reports of increased deaths due to complications (Key Informant Interviews). Skilled birth attendance was on the decline because it also required contact, which was withdrawn due to lack of PPEs.

Inferential analysis results

To further understand how different factors influenced access to prenatal and postnatal care services during COVID-19, a logit model was estimated. Prenatal care is key in minimizing maternal mortality. All the models were tested for goodness of fit and specification errors and were found to be well specified and well fitted. Table 4 presents results on access to prenatal care services during COVID-19.

Results in Table 4 show that most of the variables included in the model were statistically insignificant and this could be due to minimal disruptions by households in accessing prenatal care services during COVID-19. This is evidenced in the descriptive results which showed that less than 15% across all the study sites reported disruption of the services.

However, the results show that a household in Obunga informal settlement was 18% more likely to access prenatal care compared to a household in Kibra informal settlement. However, there was no statistically significant difference in access to prenatal care for households in Mathare and Nyawita informal settlements compared to those in Kibra informal settlement. Despite the statistical insignificance, the positive marginal effects are an indication that, on average, the probability of a household in Mathare and Nyawita informal settlement to access prenatal care was higher compared

to a household in Kibra informal settlements. The results are in line with the descriptive results which showed 82% of households in Mathare informal settlement reported no disruption of prenatal care services during COVID-19.

Table 4: Access to prenatal care during COVID-19

Variable	Marginal Effects	Std.Err.	P>z
1.Mathare	0.029	0.080	0.717
1.Obunga	0.183**	0.087	0.035
1.Nyawita	0.016	0.077	0.837
1.Age1(below 24 years)	0.033	0.081	0.681
1.Age2 (25-34 years)	-0.009	0.088	0.919
1.Age3 (35-49 years)	-0.065	0.081	0.420
1.Female	0.076	0.052	0.146
1.Married	-0.058	0.055	0.294
1.Separated_Divorced_Widowed	-0.093*	0.051	0.069
1.HH_secondary	-0.016	0.050	0.743
1.HH_CollegeORUniversity	0.006	0.077	0.933
hhsize	0.018**	0.008	0.028

Notes: dy/dx for factor levels is the discrete change from the base level. ***, **, * indicate that the marginal effect is statistically significant at 1%, 5%, and 10% levels of significance, respectively.

The results also showed that, increase in household size increased the probability of accessing prenatal care during the pandemic by 2%. Results from qualitative data collected from the four informal settlements showed that there was increased use of transactional and/or exploitative sex by adolescents, young women, and older women to mitigate income losses occasioned by COVID-19. This was also confirmed by various KII respondents who indicated transactional sex was embraced as a source of income by young girls and women to coping with the ravaging effects of COVID-19. This led to increased incidences of pregnancies and births leading to increased household sizes. Increased pregnancies and incidences of giving birth increase the chances for demanding prenatal care. This may explain why increase in household size increased the probability of accessing prenatal care during the pandemic.

In relation to marital status, there was no statistically significant difference between households whose heads were married and those whose heads were never married. There was reduced probability of accessing prenatal care between households whose heads had never married and those who had separated/divorced/widowed. The probable explanation is that there was fear of contracting COVID-19, fear of being quarantined if one exhibited symptoms similar to those of COVID-19 and these discouraged women from accessing prenatal health care.

Regarding the age of the household head, there was no statistically significant difference between various age groups. However, the positive marginal effects indicate that, on average, households whose heads were aged 24 years and below were more likely to access prenatal care services compared to those aged above 49 years. This

could be due to the increased pregnancies mainly driven by increased transactional sex during the pandemic as reported by various FGD participants. Different participants in various FGDs reported increased incidences of transactional and exploitative sex among adolescents, young girls, and women and also adults to cope with the effects of income losses due to COVID-19.

There was no statistically significance difference between male- and female-headed households in accessing prenatal care services during COVID-19. However, the positive marginal effect for female-headed households indicates that, on average, the probability that a female-headed household access prenatal care services during COVID-19 is higher than that of a male-headed household.

Table 5: Access to postnatal care during COVID-19

Variable	Marginal Effects	Std.Err.	P>z
1.Mathare	0.209*	0.120	0.082
1.Obunga	0.268*	0.116	0.021
1.Nyawita	0.231*	0.119	0.053
1.Age1	0.007	0.074	0.921
1.Age2	-0.060	0.074	0.423
1.Age3	-0.107*	0.061	0.078
1.Female	0.032	0.051	0.526
1.Married	-0.079	0.049	0.108
1.Separated_Divorced_Widowed	-0.028	0.054	0.601
1.HH_secondary	-0.037	0.049	0.461
1.HH_CollegeORUniversity	-0.017	0.066	0.795
hhsize	0.015*	0.008	0.064

Note: dy/dx for factor levels is the discrete change from the base level. ***, **, * indicate that the marginal effect is statistically significant at 1%, 5%, and 10% levels of significance, respectively.

Location in the model was specified as categorical variable, where Kibra category was used as the reference. As shown in Table 5, households in Mathare, Obunga, and nyawita were 20.9%, 26.8%, and 23.1%, respectively, likely to access postnatal health care services compared to a household in Kibra settlement scheme. The marginal effects were positive and statistically significant at 10% level of significance for Mathare and 5% level of significance for Obunga and Nyawita. The findings corroborates with the primary data collected from the four study sites, where there was minimal disruption of postnatal health care services during COVID-19.

Households with household head of age above 49 were 10.7% less likely to access postnatal health care services compared to households with household head of age below 24. The marginal effect was negative and statistically significant at 10% level of significance. This can be explained by the fact that a majority of families at this age are not of childbearing age. There was no statistical difference in access to postnatal health care between households with household head of age bracket 25-49 and below 24. The reason can be because this is the age group where majority of

households are at the childbearing phase, therefore increasing access to postnatal healthcare. Though there was no statistical difference between households with household head age bracket 35-49 and below 24, the marginal effect was negative. This implies that, for this age bracket, there was a decline in access compared to below 24. For the age bracket 25-34, the marginal effect was positive, which implies that there was an increase in access to postnatal health care services; this can be explained by the fact that, during COVID-19, there was an increase in the number of unwanted pregnancies.

There was no statistical difference in access to postnatal health care during COVID-19 between male- and female-headed households. The marginal effect for female-headed households is positive, indicating that, on average, the probability that a female-headed household accessing postnatal care services during COVID-19 is higher than that of a male-headed household. The result corroborates with primary data findings, where majority of male-headed households reported disruption of immunization services. In addition, according to the key informants, the decline in access to postnatal care services was attributed to the second wave of COVID-19 that increased fear of accessing hospital services.

There was no statistical difference between married and separated/divorce/windowed and the categorical variable never married. The marginal effect for married and separated/divorce/windowed were negative and statistically insignificant. This may be an indication that, during COVID-19, access to postnatal health care reduced compared to those of never married group. The probable explanation is that there was fear of contracting COVID-19, fear of being quarantined if one exhibits symptoms akin to those of COVID-19 and this discouraged all women from accessing postnatal health care services.

There was no statistical difference between secondary and college/university and the categorical variable primary education. This implies that irrespective of the level of education, access to postnatal health care services declined during COVID-19. This can be attributed to fear of contracting COVID-19 in the healthcare facility and fear of being quarantined if one exhibits symptoms akin to those of COVID-19.

Coping mechanisms employed by girls and women to mitigate the impacts of income loss due to Covid-19 pandemic

Descriptive statistics

Households experienced loss of income through loss of employment and collapse of the livelihood sources. This section presents a summary of the main sources of livelihood for the households in the informal settlements before the onset of COVID-19 and the nature of income losses that they experienced.

Main sources of livelihoods for sampled households before the onset of COVID-19

Most of the households in the informal settlements derived their livelihoods from activities that were adversely affected by the market disruptions and movement restrictions by the government to contain spread of coronavirus. Respondents in the household surveyed were asked to describe personal economic activities before the onset of COVID-19 as of February 2020. The summary of the responses is presented in Table 6.

Table 6: Main economic activities of households before the onset of COVID-19

Economic Activity	Male-headed households n=147		Female-headed households n=129		% of Households in overall sample
	N	%	N	%	
Worked for a person/company/household for Pay	65	44	48	37	41
Owned a business/freelancer and employed other people	16	11	7	5	8
Owned a business/freelancer and did not employ other people	40	27	59	46	36
Casual work for others, non-agriculture	42	29	32	25	27
Farmer, employed other people	4	2	6	5	4
Subsistence farmer, own production	16	11	15	12	11
Casual labourer in agricultural enterprise	8	5	5	4	5
Worked without pay in a family business	10	7	7	5	6
Unemployed	41	28	56	43	35

Source: Household Survey Data (2021).

The summaries presented in Table 1 show that 35% of the household heads interviewed were unemployed before the onset of COVID-19. A larger proportion (43%) of women heads of households were unemployed compared to 28% of the male heads of households. The main economic activities for the households included work for a person/company/household for pay; own operated businesses/freelancing; and casual work in non-agricultural enterprises. Women heads of households were less represented in paid work (37%) compared to male heads of households (44%). More women heads of households were in own-run businesses (46%) compared to male heads of households (27%). Paid jobs are associated with more stable income relative to own-run small businesses. The summaries show that female-headed households in the informal settlements were more disadvantaged economically even before the onset of COVID-19.

Households experienced loss of employment and incomes during the pandemic. Respondents were asked to indicate whether there was loss of employment for the household head, another male/female member of the household, as well as whether their income diminished, increased, lost all income or income did not change since the onset of COVID-19. A summary of the responses for households for loss in income and employment is presented in Table 7.

Table 7: Loss of employment and household incomes during COVID-19

Nature of Income Loss	Male-headed households n=147		Female-headed households n=129		% in total sample
	n	%	n	%	
Loss of employment	75	51	81	63	57
Increase in Income	1	0.6	1	0.8	0.7
Diminished Income	97	66	90	70	68
Total loss of Income	39	27	27	21	24
No change in Income	6	4	10	8	6

Source: Household Survey Data (2021).

Most (57%) of the households in the informal settlements lost employment with 63% of female and 51% of male-headed households reporting such loss. Total loss of income was reported in 24% of the sampled households with 27% of male-headed households compared to 21% of female-headed households being affected. Participants in FGDs in Obunga and Nyawita explained that many men than women suffered total loss of incomes. This is because some activities that women engaged in before COVID-19 such as sale of vegetables and other foods, and laundry services only reduced but did not stop completely. This is opposed to men who were mostly in paid employment, which stopped due to COVID-19. A diminished income was reported by 68% of the households with a higher incidence in female (70%) than in male (66%) headed households. Overall, only 6% of all households experienced no change in income, and less than 1% had increased incomes. The results show that loss of incomes affected most households with the difference being only in terms of the magnitude.

In respect to informal settlements (Table 8), the highest incidences of diminished incomes were in Nyawita (82%) and Mathare (70%). Kibra and Obunga informal settlements, on the other hand, reported highest incidences for total loss of incomes with 34% and 30% of households, respectively, having suffered such losses. Loss of employment was more pronounced in Kisumu where about 60% of the households each in Nyawita and Obunga informal settlements experienced loss of employment. This is compared to about 53% of the households each in Kibra and Mathare informal settlements in Nairobi.

Table 8: Loss of income and employment by location

Nature of Income Loss	Kibra n=65		Mathare n=70		Obunga n=74		Nyawita n=67	
	n	%	n	%	n	%	n	%
Loss of employment	35	54	36	51	44	60	41	61
Increase in income	0	0	1	1	0	0	1	1
Diminished income	32	49	50	71	50	68	55	82
Total loss of income	22	34	16	23	22	30	6	9
No change in income	10	15	2	3	1	1	3	5

Source: Household Survey Data (2021).

Vulnerabilities faced by households due to COVID-19

Many households experienced difficulties in meeting basic needs including nutrition due to loss of employment and incomes associated to COVID-19. A number of households reported severe food insecurity across the study sites where members did not eat at all for a day or more because of lack of money or other resources (Table 9).

Table 9: Incidence of severe food insecurity during COVID-19 by gender and location

Did not eat at all for a day or more because of lack of money or other resources since the onset of COVID-19	Overall sample	Kibra M=25 F=40	Mathare M=55 F=15	Obunga M=34 F=40	Nyawita M=33 F =34
	n (%)	n (%)	n (%)	n (%)	n (%)
Male-headed households: n=147	24 (16.3)	14 (58)	6 (11)	4 (12)	0
Female-headed households: n=128	20 (15.6)	15 (38)	1 (7)	4 (10)	0
Total observations: N =275	44 (16)	29 (45)	7 (10)	8 (11)	0

Source: Household Survey Data (2021).

Incidence of severe food insecurity in the overall sample was 16%. By location, Kibra informal settlement had the highest proportion of households (45%) who experienced severe food insecurity compared to the Mathare (10%) and Obunga (11%) informal settlements. More (16.3%) of the male-headed households compared to female-headed households (15.6%) suffered severe food insecurity across the locations. This can be attributed to the fact that more male-headed households reported total loss of incomes (Table 10).

The FGD participants reported that girls and women particularly faced a number of challenges and difficulties following the loss of household incomes due to COVID-19. These included inabilities to obtain personal use products and other basic necessities, including house rent. Girls and women were more exposed to sexual harassment, exploitation and abuse as they sought support to address their needs. While young women experienced increased conflicts with their parents, married women experienced increased conflicts with their husbands due to inability to support

household needs. Conflicts between young girls and their parents made some girls to opt for early marriage.

Coping mechanisms to income losses during COVID-19

The survey respondents were asked to indicate the copying strategies adopted by the households to mitigate the income losses due to COVID-19 (Table 9). The copying mechanisms included eating less or skipped a meal; received financial help from a family member; a member of the household migrated to live with another family member; household member begged from a well-wisher; household sent some children to rural home to relieve burden; and had a young female eloped but household members did not follow up (Table 10). The latter was used to capture incidence of early or forced marriages by young girls due to economic hardship in the household.

Table 10: Coping mechanisms used to mitigate income loss due to COVID-19

If you (or your household) suffered any loss of income, which of the following coping methods did you and any of your household members apply to cope with the effects?	**Male-headed households n=147**		**Female-headed households n=128**		**% in the overall sample**
	n	**%**	**n**	**%**	
Ate less or skipped a meal	102	69	86	67	68
Received financial assistance from another family member	34	23	36	28	25
Member of household migrated to live with another family member	32	22	30	23	23
A member of household begged from a well wisher	42	29	23	18	24
Sent some of the children to rural home to ease financial burden	36	24	31	24	24
Young female member of household eloped but not followed up	6	4	14	11	7

Source: Household Survey Data (2021).

The survey results presented in Table 9 show that majority (68%) of the households mitigated the income loss due to COVID-19 by eating less or skipping a meal. A slightly higher proportion of male-headed households (69%) compared to female-headed households (67%) ate less or skipped a meal, and/or begged to mitigate the income loss due to COVID-19. Disaggregation of the survey data on households that ate less or skipped a meal by gender of household head and location (Table 11) show that the incidence of eating less or skipping a meal amongst female-headed households was highest in Mathare (93.3%) and Obunga (67.5%) informal settlements. The incidence of eating less or skipping a meal among male-headed households was highest in Kibra informal settlement (72%). Nyawita informal settlement reported the lowest incidence of eating less or skipping a meal for both male (27.3%) and female (26.5%) headed households.

Table 11: Distribution of households where members ate less or skipped a meal

If you (or your household) suffered any loss of income and any of your household members ate less/skipped a meal to cope with the effects							
		Male-headed household			**Female-headed household**		
		N	**n**	**%**	**N**	**n**	**%**
Location	Kibra	25	18	72	40	18	45
	Mathare	55	35	63.6	15	14	93.3
	Obunga	34	16	47.1	40	27	67.5
	Nyawita	33	9	27.3	34	9	26.5

Source: Household Survey Data (2021).

The finding for Mathare informal settlement support those of Pinchoff et al. (2021) who found the probability of women reporting skipping meals to be higher than that of men in Mathare informal settlement.

Other copping strategies used were: receiving financial assistance from another family member (25%), begging (24%), sending children to rural home (24%), and migration by a family member (23%). A relatively higher proportion of female-headed households received financial assistance from another family member, had a member of the household migrating to live with another family member and/or experienced early, or forced marriage of a young female member of household. Early or forced marriage by a young female member of household was reported by 7% of the households interviewed.

The summary results from the household survey are consistent with qualitative data gathered through FGDs and KIIs. The FGD and KII respondents further revealed that some girls sought financial support from boyfriends, or engaged in transactional sex to get money for food and other needs. Other young females opted for early marriage. According to the survey, girls aged 10-14 years reportedly engaged in child labour, hawking and begging from well-wishers. Begging was more pronounced in Kibra informal settlement, and in households that experienced total loss of income. Children from households with older household heads were less likely to engage in begging. Those aged 15-17 years engaged in beadwork, sale of food items within the estates, and laundry and cleaning jobs for other households. Some girls in this category were also married off. These activities expose young girls to abuse and exploitation with long-term negative consequences in their development. The survey data showed that women mainly coped to income losses due to COVID-19 through hawking food items within the estates, taking food items from shops on credit, borrowed money from shylocks and digital money lenders or relocated to the rural areas with their children. It is reported that some women separated from their husbands to relieve the economic burden while others abandoned their children. Respondents in all the women only FGDs in Kisumu and Nairobi reported that transactional sex increased among adolescents, young and older women during COVID-19. The vice was perceived as a ready source of income for food and other household needs, including rent.

Inferential analysis results

Logit regression models were estimated to provide understanding on how the coping mechanisms adopted by households to mitigate income losses due to COVID-19 varied across study locations and socioeconomic characteristics of households. The estimated models were subjected to diagnostic tests for goodness of fit and the link tests for misspecification error. The models satisfied all the tests of statistical soundness.

Coping by eating less or skipping a meal during COVID-19

Eating less for extended periods of time compromises people's health and can have negative impacts on the development of children. According to Vinicius et al. (2011), under-nutrition is a public health problem responsible, not only for the highest mortality rate in children, but is also linked to poor mental development, lower school achievement and behavioural abnormalities. In the long term, the development and cognitive effects of under-nutrition among children negatively impact future ability of such children to escape the poverty that they were born in (Gikandi, 2020).

Descriptive statistics from the survey showed that 68% of the households interviewed mitigated income loss due to COVID-19 by eating less or skipping a meal (Table 10). A logit regression model was fitted to test the effect of location, gender of household head, marital status of household head, loss of employment, loss of income, and number of children in the household on the copying strategy. The estimation results are presented in Table 12.

Table 12: Logit regression for eating less or skipping a meal during COVID-19

Dependent Variable: Ate less /skipped meals = 1; 0 otherwise		
Variable	**Marginal Effect (dy/dx)**	**Standard Error**
Location_ Mathare	0.239***	0.0913
Location_ Obunga	0.0653	0.0953
Location_Nyawita	- 0.2759***	0.0950
Female-headed household =1	0.0615	0.0767
Loss of employment in the household	0.1338***	0.0728
Household lost all income	0.1466**	0.0836
Marital status _single	- 0.1411*	0.0849
Number of children <5years	- 0.019	0.0478
Number of children 6-17years	- 0.02231	0.0358
Diagnostic Test Results		
Tests results for Goodness of Fit	Prob > chi2 = 0.7174	
Link Test results	_hatsq _P>|z| = 0.760	

Notes: dy/dx is for discrete change of dummy variable from 0 to 1; ***, **, * indicates that the marginal effect is statistically significant at 1%, 5%, and 10% levels of significance, respectively.

The estimation results reveal that a household in Mathare informal settlement was 24% more likely to eat less or skip a meal compared to a household in Kibra informal settlement. However, a household in Nyawita informal settlement was 27% less likely to eat less or skip a meal relative to a household in Kibra informal settlement. There is, however, no statistically significant difference in the probability of a household in Obunga informal settlement using this coping strategy compared to those in Kibra informal settlement. The estimation results confirm that the incidence of eating less or skipping a meal was highest in Mathare informal settlement and lowest in Nyawita informal settlement.

The differences in the incidences of eating less or skipping a meal across informal settlements may be attributed to a number of factors. The survey data showed that a higher proportion (47%) of households in Mathare informal settlement experienced diminished income or total loss of income compared to the households in Kibra informal settlement (41.5%). Similarly, the proportion of households that reported total loss of income in Kibra informal settlement (34%) was 3.7 times that of Nyawita informal settlement (9%). Equally, households in Nyawita informal settlement were the majority (60%) beneficiaries of the COVID-19 cash transfers for the socioeconomically vulnerable populations unveiled by the government.

The study did not find any statistically significant difference in use of eating less or skipping a meal as a copying mechanism between male- and female-headed households. However, the positive marginal effect for female-headed households shows that, on average, the probability that a female-headed household would eat less or skip a meal to mitigate income loss due to COVID-19 is higher than that of a male-headed household.

The study results also show that the incidence of eating less or skipping a meal was higher in households that experienced loss of employment or total loss of income compared to those that experienced diminished or no change in income. Relative to those households that did not experience loss of employment, a household that experienced loss of employment was 13.4% more likely to eat less or skip a meal. Similarly, household that suffered total loss of income were 14.7% more likely to eat less or skip a meal compared to those households that reported diminished or no change in income due to COVID-19.

The estimation results also show that households whose heads were single were 14% less likely to eat less or skip a meal compared to those with a household head who is married, widowed, divorced or separated. The study did not establish any significant difference in eating less or skipping a meal between households whose heads were married, widowed, divorced or separated. The findings, therefore, do not support the earlier findings of Pinchoff et al. (2021) that women who are divorced, separated or widowed were more likely to skip a meal than the married ones.

The findings indicate that, gendered food insecurity problems during crises can vary by location and other socioeconomic characteristics of households. The implication is that food relief and social protection programmes that aim to avert food insecurity among socioeconomically vulnerable populations during crises should be informed by evidence from area-specific analyses.

Social support systems adopted by households to cope with income loss

The household survey showed that some households in the informal settlements utilized social support systems to cope with income losses due to COVID–19. These included receiving financial assistance from other family members, a member of the household migrating to live with another relative, and sending some of the children to rural home to ease financial burden. Such support system is expected to increase financial resilience of households during cries. Estimated variations in use of these support systems based on socioeconomic characteristics of households are summarized in Table 13.

Table 13: Logit regression models for use of social support systems

Variable	Received financial support from a family member	Household member migrated to live with another family member	Sent some children to rural home to ease the burden
	Marginal Effects (dy/dx)	Marginal Effects (dy/dx)	Marginal Effects (dy/dx)
Location_ Mathare	0.2631***	-0.3015***	0.6219***
	(0.0657)	(0.0547)	(0.1359)
Location_ Obunga	0.2035***	-0.2311***	0.5592***
	(0.0743)	(0.060)	(0.1424)
Location_Nyawita	-0.1459	-0.2788***	-0.0393
	(0.1032)	(0.0545)	(0.1141)
Female-headed household =1; male=0	0.0340	-0.0364	-.0919*
	(0.0805)	(0.0685)	(0.0496)
Loss of employment in the household	0.0596		-0.0536
	(0.0661)		(0.0441)
Age in years		0.0021	
		(0.0028)	
Household lost all income		-0.1416**	-0.0548
		(0.0556)	(0.0405)
Household size		0.0497	
		(0.0322)	
Single	-.0380	0.2575***	0.07902
	(0.0917)	(0.0989)	(0.0697)
Separated	0.2402		0.1797*
	(0.0701)		(0.1093)

continued next page

Table 13 Continued

Variable	Received financial support from a family member	Household member migrated to live with another family member	Sent some children to rural home to ease the burden
	Marginal Effects (dy/dx)	**Marginal Effects (dy/dx)**	**Marginal Effects (dy/dx)**
Divorced	-.1525		
	(0.228)		
Widowed	-0.1144	-0.0673	
	(0.1248)	(0.0896)	
Experienced severe food insecurity	-0.4234***	-0.2518***	0.2375*
	(0.1007)	(0.0443)	(0.1395)
Number of children <5year	0.0435		
	(0.0574)		
Number of children 6-17years	.01434	-0.0997*	0.01829
	(0.01858)	(0.0538)	(0.0198)
Number of people 18-34 years		-0.0632	
		(.0507)	
Diagnostic Test Results			
Tests results for Goodness of Fit Prob > chi2	0.8304	0.1757	4685
Link Test results_hatsq. P>|z|	0.517	0.784	0.693

Notes: dy/dx is for discrete change of dummy variable from 0 to 1; numbers in parentheses are standard errors; ***, **, * indicate that the marginal effect is statistically significant at 1%, 5%, and 10% levels of significance, respectively.

The logit estimation results show that households in Mathare and Obunga informal settlements were 26.3% and 20.4%, respectively, more likely to receive financial support from a family member compared to a household in Kibra informal settlement. The marginal effects were positive and statistically significant at 1% level of significance. Though the probability of a household in Nyawita informal settlement receiving financial support from a family member was 14.6% lower than that of a household in Kibra informal settlement, the difference was not statistically significant. Use of receipt of financial support as a mitigation mechanism did not significantly differ for households on account of the gender of the household head, marital status of the household head, or the number of children in a household.

Households that experienced severe food insecurity appeared to slip deeper into poverty compared to households that did not experience severe food insecurity. The severe food insecure households were 42.3% less likely to have received financial support from a family member. The implication is that, lack of social support mechanism to severely food insecure households increases their vulnerability. It also shows that such households should be prioritized in cash transfers targeting the socioeconomically vulnerable populations.

The survey also showed that households in informal settlements used migration of a household member to live with another family member as a strategy to mitigate income losses due to COVID-19. This strategy was found to have been more prevalent in Kibra informal settlement than in the other three study sites. The estimation results show that households in Mathare, Nyawita, and Obunga informal settlements were 30.2%, 27.9%, and 23.1% less likely to have any of their members migrate to live with another family member compared to a household in Kibra informal settlement.

While it is expected that households that lost all income or experienced severe food insecurity could have mitigated such income loss by seeking social support, the estimation results show the contrary. It shows that households that lost all income and those that experienced severe food insecurity were 14.2% and 25.2%, respectively, less likely to have had a member of the household migrate to live with another family member. The results also show that a household headed by a single person had 25.8% more chance of having one of its members migrate to live with another family member compared to households headed by persons of other marital statuses.

Households in Mathare and Obunga informal settlements were 62.2% and 55.9%, respectively, more likely to have sent some children to their rural home to ease the household's financial burden compared to a household in Kibra informal settlement. There was no statistical difference in the likelihood of households in Nyawita and Kibra informal settlements using this strategy as a copying mechanism to income loss due to COVID-19.

A female-headed household was 9.2% less likely to have sent some children to rural home compared to male-headed households. Further, households that experienced severe food insecurity were 23.8% more likely to have sent some children home compared to those which did not. A household headed by a person who separated from the spouse was found to be 18% more likely to have sent some children to rural home compared to the households whose heads were widowed or divorced.

The low probability of female-headed households sending some children to their rural homes to mitigate income losses due to COVID-19 may be attributed to the fact that women are not endowed with productive resources in the rural areas. This makes it difficult for them to get people who are willing to provide care for their children. In contrast, men are relatively advantaged in terms of access to productive resources, including social networks in the rural areas. They experience minimal constraint, if any, to find a caregiver for their children in the rural areas. The results, therefore, suggest a disproportionate advantage that male-headed households have in social networks to provide care to their children during crises. Female-headed households, on the other hand, tend to suffer heightened vulnerability due to income losses than male-headed households.

Early or forced marriage as a coping strategy to income loss due to COVID-19

The survey data showed that 7% of all the households interviewed experienced early or forced marriage of a young family member during COVID-19 (Table 10). Early or forced marriage was used by the households to mitigate income loss due to the COVID-19 pandemic. Respondents of the 12 FGDs conducted in the four study sites reported

that early or forced marriage of young girls increased during the pandemic. The FGD participants attributed it to increased poverty and lack of basic needs, which forced girls and young females to move and cohabit with their boyfriends. Idleness triggered by prolonged closure of learning institutions, peer pressure and increased conflicts between parents and the young girls also acted as a push factor to their early or forced marriages.

A logit regression model was fitted to establish variations in the use of early or forced marriage by households in the four informal settlements (Table 14). The results show that the vice was used more by the households in Nyawita informal settlement compared to those in Kibra, Mathare, and Obunga. The estimation results further show that households in Kibra and Mathare informal settlements were 32.3% and 18%, respectively, less likely to have experienced early or forced marriage of a young female member of the household during COVID 19 relative to the households in Nyawita informal settlement. The estimated marginal effects were statistically significant at 1% level of significance in both cases. There was, however, no statistically significant difference in the probabilities of households in Kibra and Nyawita informal settlements experiencing early or forced marriages during the COVID-19 pandemic. The study findings imply that, early or forced marriage due to the COVID-19 pandemic was rampant in the informal settlements in Kisumu compared to those in Nairobi.

Table 14: Use of early or forced marriage as a coping strategy

Dependent variable: Early or forced marriage of a young female member =1, 0 otherwise		
Variable	**Marginal Effects (dy/dx)**	**Standard Error**
Location_Kibra	-0.3233***	0.0505
Location_ Mathare	-0.1801***	0.0620
Location_ Obunga	-0.1004	0.0652
Female-headed household =1	0.0846	0.0720
Loss of employment in the household	0.1529***	0.0582
Household lost all income	0.02981	0.0737
Household size	0.01804	0.0132
Single	-0.0722	0.0805
Married	0.0311	0.0786
Diagnostic Test Results		
Tests results for Goodness of Fit	Prob > chi2 = 0.2625	
Link Test results	_hatsq. P>|z| = 0.335	

Notes: dy/dx is for discrete change of dummy variable from 0 to 1; numbers in parentheses are standard errors; ***, **, * indicate that the marginal effect is statistically significant at 1%, 5%, and 10% levels of significance, respectively.

The relative vulnerability of the households in the informal settlements in Kisumu leading to early or forced marriages of girls and young females is supported by survey data. It shows that majority (42.5%) of the households who reported to have received social assistance support from the government during COVID-19 were from Mathare informal settlement. According to the estimates, the proportion of households from Mathare

informal settlement who received social assistance support from the government during COVID-19 was 11.5 percentage points higher than those who got the support before the pandemic. In contrast, fewer households in Obunga and Nyawita informal settlements received the social assistance during COVID-19 compared to the pre COVID-19 period. In this respect, the proportion of households in Obunga informal settlement who received social assistance support declined from 25% before COVID-19 to 21.4% during COVID-19. Similarly, only 14.6% of the households in Nyawita informal settlement reported to have received social assistance support during COVID-19 compared to 31.7% who received the support before COVID-19. The implication is that, though the Kenya Government unveiled several social protection measures to cushion the citizens against the negative effects of COVID-19, the support did not reach most of the households in the informal settlements.

The estimation results also show that, households which experienced loss of employment during COVID-19 had a higher probability (15%) of reporting early or forced marriage. Gender of household head, household size and marital status of the household head did not have a statistically significant effect on the probability of the household experiencing early or forced marriage.

Engaging in transactional sex to cope with income loss due to COVID-19

The FGDs and KIIs conducted in the four informal settlements revealed that use of transactional or exploitative sex by adolescents, young women and older women to cope with income loss due to COVID- 19 increased. A young school going girl who participated in a girls-only FGD in Nyawaita informal settlement reported that *"there is a building near our house where many girls are go in to sell sex for money during the long school break due to COVID".* The KII respondents also confirmed that transactional sex was embraced by girls and women as an alternative means for sourcing money mostly to purchase food and meet other basic household needs, including rent. Women FGD respondents from Obunga informal settlement reported that transactional sex helped many women to easily obtain money because *"it is one thing you do not buy to sell and can give you money quickly to feed your children".*

Young girls interviewed in the girls-only FGDs revealed that many adolescent and young girls engaged in exploitative sex for income due to widespread "*sponsor*" mentality among teenagers, and peer pressure. Girls and women in Mathare informal settlement interviewed reported that they used sex as a means of benefiting from the COVID-19 social assistance programmes unveiled by the government. The survey respondents reported that government officers who were responsible for identifying and registering beneficiaries in programmes such as *Kazi Mtaani* demanded bribes. However, young girls and women who could not afford the monetary bribes were asked to offer sex to get enlisted. Survey respondents also reported that some landlords in the locality also sexually exploited their vulnerable tenants who could not meet their monthly rental obligations. The implication is that loss of income and livelihoods increases vulnerability of girls and young women to transactional and exploitative sex.

4. Conclusions and recommendations

Conclusions

The broad objective of this study was to assess the economic, social, and health effects of COVID-19 and copying mechanisms employed by girls and women to mitigate the impacts of income loss due to the COVID-19 pandemic. It used a mixed methods approach and analysed primary data collected from 402 households in Kibra, Mathare, Nyawita, and Obunga informal settlements. This was supplemented with data gathered through 12 FGDs, 15 KIIs, and secondary information from published materials.

While there was access to prenatal and postnatal services in the health facilities, it was restricted due to congestion of the hospital beds by the COVID-19 patients. Women and girls who sought prenatal/postnatal services that required admission were often advised to seek home-based care. This resulted in a change of the discharge policy by hospital management to even two hours for delivery patients. It is also reported that in some cases, some mothers defaulted on different vaccinations for their babies and others resorted to home-based prenatal and postnatal care. This applied across the board even to the teenage mothers some of whom sought traditional birth assistance at a comparatively higher cost per delivery than their subsequent-delivery counterparts.

Majority of households in the informal settlements lost employment, income, and livelihoods due to disruptions occasioned by COVID-19. The loss of household income impacted on food and nutritional security of the households. Households resorted to different coping mechanisms to mitigate the income losses. The strategies adopted included reduced eating and use of social support systems. The gender dimensions in reduced eating due to loss of incomes are locational and influenced by other household characteristics.

Some girls and young women particularly used risky and negative coping strategies. These included child labour, begging, hawking, early or forced marriage, and transactional sex. Early or forced marriages among girls and young women were also fuelled by long school closures and peer pressure. Use of transactional sex by girls and women to access government support for the socioeconomically vulnerable population is a breach of human rights and signifies violence towards the female gender. Risky and negative coping strategies have the potential to increase vulnerabilities of girls and young women.

Begging and hawking exposed the girls and young women to sexual exploitation. This contributed to increased teenage pregnancy and child marriages. These vices interfere with school enrolment and transition for the girls and young women, or slow down their school to work transition and participation in the labour market. The implication is that girls and young women will find it difficult to work themselves out of poverty.

The loss of income due to COVID-19, coupled with weak targeting of the government's social assistance programmes, also heightened the gender inequalities that existed even before the pandemic.

Male-headed households were relatively more advantaged than their female counterparts in accessing social support. The implication is that vulnerable female-headed households are more likely to have been non-resilient in the absence of government and institutional support.

Recommendations

A number of policy recommendations emanate from the study findings.

To ensure that there is access to prenatal and postnatal health services, members of households and the general community should be sensitized that women of reproductive age can still access prenatal and postnatal health services, even during curfews and restricted movements without having to experience police brutality. Such sensitization can be done through digital and social media platforms. Also, partners should utilize the community strategy for demand creation and provision of authorized services at the service delivery points. To increase access to prenatal and postnatal health services, the ministry of health should come up with postnatal care follow-up protocol, especially during a pandemic.

Government departments of gender both at national and county government levels, in partnership with private institutions and non-governmental organizations should facilitate economic empowerment programmes that generate employment opportunities with stable incomes for women. Business development programmes and financial products targeted at women entrepreneurs will be critical for effective recovery. The study showed that most of female heads of households were engaged in business activities that cannot withstand shocks and were severely affected by the disruptions occasioned by COVID-19.

Government interventions to cushion socioeconomically vulnerable households during crises should factor gender considerations guided by the factors that determine household vulnerabilities in each location. The survey revealed that vulnerabilities of different gender vary from one location to another.

Government systems for enlisting beneficiaries to social protection programmes should be open and transparent and should be free from harm, manipulations and abuse of the rights of the vulnerable girls and women. Further, early response to loss of livelihoods and income can avert negative coping mechanisms that can otherwise lead to increased vulnerabilities for women and increased inequalities.

During crises, such as those experienced during the pandemic, the government, through the ministry of education, should take necessary considerations and actions to ensure that all students are kept busy. Programmes that enhance continuous leaning for school and college going girls can avert early marriage and the negative consequences on girls and young women.

County government departments for gender, youth and cultural services, through partnerships with community based organizations and religious institutions, should design and implement sensitization forums targeted at girls and young women. The forums should aim at influencing the attitudes of girls and young women on early marriage and transactional sex.

Notes

1. Kenya National Bureau of Statistics (KNBS). 2020. Women's Empowerment in Kenya: Developing a Measure. Nairobi: Kenya National Bureau of Statistics.

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To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

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Contact Us
African Economic Research Consortium
Consortium pour la Recherche Economique en Afrique
Middle East Bank Towers,
3rd Floor, Jakaya Kikwete Road
Nairobi 00200, Kenya
Tel: +254 (0) 20 273 4150
communications@aercafrica.org