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Coping Mechanisms to Income Loss by Girls and Women During COVID-19: Evidence from Selected Informal Settlements in Kenya

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Abstract

This study investigated the coping mechanisms that were adopted by girls and women to mitigate the impacts of income loss due to COVID-19 pandemic. A mixed methods approach involving use of desk review, cross-sectional survey, key informant interviews and focus group discussions was employed. A logit regression model was estimated using data collected from 402 randomly selected households from Kibra, Mathare, Obunga and Nyawita informal settlements. Most households in the informal settlements lost employment and incomes during the pandemic leading to increased food insecurity. Girls and women bore a disproportionate share of the burden of employment and income loss and could not access basic necessities including food and house rent, suffered increased sexual harassment, exploitation and abuse, and experienced increase in conflicts within households. To mitigate the impacts of income loss, households reduced food intake or skipped meals, made use of social support systems, begged from well-wishers. Use of risky and negative coping mechanisms including early and forced marriage, as well as transactional sex increased among adolescent girls, and young and older women. The study recommends design and implementation of business and non-business development services to engage women entrepreneurs in more stable income generating activities for enhanced post COVID-19 recovery. Further, County government departments for gender, youth and cultural services, and community and faith-based organizations should undertake more sensitization programmes in the informal settlements to influence attitudes of girls and young women on early marriage and transactional sex. Government-based social protection programmes for the vulnerable households should be made more open and transparent, free from harm, manipulations and abuse. Beneficiary targeting of such programmes should also be based on the differential vulnerabilities of households in each location. Early response of the government and other institutions to cushion

vulnerable households during crises can significantly avert negative coping mechanisms and mitigate rising and compounded vulnerabilities and inequalities faced by girls and women.

Keywords: COVID-19; household vulnerability; loss of income; risky and negative coping mechanisms

INTRODUCTION

Restricted movements during COVID–19 pandemic led to reduced economic activities in Kenya. Many businesses closed down, triggering loss of employment, income and livelihoods for households. The loss of livelihoods and incomes particularly by poor households exacerbated poverty and food insecurity thereby heightening vulnerability of the households (Pinchoff, Austrian, Rajshekhar, et al., 2021) [1]. Residents of informal settlements suffered disproportionate burdens of losses in employment, income and livelihoods. According to the Coalition for Women's Economic Empowerment and Equality (CWEE, 2020) [2], women suffer disproportionate and heightened vulnerabilities during crises due to their overrepresentation in the informal sector. Pinchoff, Austrian, Rajshekhar, et al., (2021) also argued that the stress and disruptions occasioned by COVID-19 had the potential to increase the risk of women and girls engaging in negative coping mechanisms such as child, early or forced marriage and exploitative sex. Other risky and negative coping strategies such as begging and hawking also expose young girls to physical and sexual abuse, and unsafe sexual practices (Ouédraogo, Ebrima, and Huang (2017)[3]. Other studies (Vinicius et al., 2011[4]; Amendah, Buigut and Mohamed, 2014[5]) also find that while reduced eating and skipping of meals is a common coping strategy to food and resource shortages, it leads to under-nutrition which is one of the underlying causes of illness and death among women and young children in Africa (Burgess and Danga, 2008)[6]. Eating less for extended periods of time compromises people's health and can have negative impacts on the development of children. In the long term, the development and cognitive effects of under-nutrition among children negatively impact their future ability to escape the poverty that they were born in (Gikandi, 2020) [7].

Child, early and forced marriage is harmful to girls and young women, and is often associated with serious forms of violence against women and girls. The vices are an affront to human dignity and well-being, and an impediment to sustainable development (Puri, 2016) [8]. Child marriage particularly impedes progression of girls as it deprives them of a number of opportunities that are important for improving their standards of living (Kapur, 2021) [9]. Transactional sex, among young women has been linked to poor sexual and reproductive health outcomes. These include unplanned pregnancies, unsafe abortions, and sexually transmitted infections (Choudhry, Ambresin, Nyakato & Agardh, 2015) [10]. The Sustainable Development Goal (SDG) number five (5) 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 other types of exploitation (United Nations, 2015) [11].

A few studies (Xu, Delius and Pape, 2022[12]; Pinchoff, Austrian, Rajshekhar, *et al*., 2021; and Tal and Geraldine, 2020) have been conducted to investigate the socio-economic effects of COVID-19 and other crises on women and girls. The study by Tal and Geraldine (2020) [13] was not based on actual experiences in the context of COVID – 19 and did not analyze the coping mechanisms adopted by girls and women to mitigate effect of income losses due to the

pandemic. Pinchoff, Austrian, Rajshekhar, *et al*. (2021) sampled prospective longitudinal cohort of households with adolescent girls from five informal settlements in Nairobi which may not represent the diverse range of characteristics of households in the informal settlements. Though Xu, Delius and Pape (2022) analyzed the gender differences in household coping strategies for COVID-19 in Kenya, it omitted use of risky and negative coping mechanisms by girls and women to mitigate the income losses. Understanding the use of risky and negative coping mechanisms adopted by girls and women to mitigate income losses due to COVID-19 is important in assessing the actual vulnerabilities by the target population to the pandemic.

OBJECTIVE OF THE STUDY

This study aimed at establishing the coping mechanisms that girls and women used to contend with the challenges of loss of incomes due to COVID -19. The purpose was to find out whether the pandemic had caused heightened vulnerabilities among women and girls through increased use of risky and negative coping mechanisms.

METHODOLOGY

The study adopted a mixed methods approach combining desk review and 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. A sample of 400 households was drawn, and an equal allocation applied across the study sites. Additional primary data was gathered through key informant interviews (KIIs) and focus group discussions (FGDs). Women only, adolescent girls only, and mixed group FGDs were conducted in each of the four study sites. The mixed group FGD comprised community leaders, local administration, youth leaders, women leaders, and People Living with Disabilities (PLWDs).

A total of 402 households were covered in the survey. One hundred (100) respondents each were captured in Mathare, Obunga and Nyawita informal settlements while Kibra informal settlement turned in 102 respondents. Fifteen (15) key informants were captured. They were from the Ministry of Labour; Ministry of Health; Nairobi City County Government; Kisumu County Government; National Gender and Equality Commission; United Nations Population Fund; local non-governmental organizations (NGOs) working in the four 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 percent of whom were females.

Descriptive and inferential analytical approaches were used in the analysis. Qualitative data from Key informants and FGDs were transcribed according to questions and issues under investigation to identify emerging similarities and trends in responses and enable conclusions. The 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 $\boldsymbol{y}$ is a binary dummy variable representing the choice of a household in using a specific coping strategy during COVID-19; $\boldsymbol{X}$ is a vector of household-specific independent variables.

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These include the informal settlement in which the household reside in, gender of the household head, age of household head, marital status of the household head, age of children in the household, and income and employment losses experienced by the household due to COVID-19. Marginal effects derived from the estimated models were interpreted and policy implications drawn from them.

FINDINGS AND DISCUSSIONS

Descriptive Statistics

The main sources of livelihood for the households in the informal settlements before onset of COVID-19 and the nature of income losses that they experienced are discussed below.

Main Sources of Livelihoods for Sampled Households Before Onset of COVID-19:

Respondents in the household surveyed were asked to describe personal economic activities that they were engaged in before the onset of COVID-19. The summary of the responses is given in Table 1 showing that majority of the households in the informal settlements derived their livelihoods from wage employment, businesses and other economic activities that were adversely affected by the containment measures and travel restrictions imposed by the government to contain the spread of COVID-19.

Table 1: Main economic activities of households before 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 OF DATA: HOUSEHOLD SURVEY DATA (2021)

The summaries show that 35 percent of the household heads were unemployed before the onset of COVID-19. A larger proportion (43%) of women heads of households were unemployed compared to 28 percent for males. The main economic activities before COVID -19 included work for a person/company/household for pay; own operated businesses/freelancing; and casual work in non-agricultural enterprises. More women heads of households were in own-run businesses (46%) compared to male heads of households (27%) and were less represented in paid work (37%) compared to male heads of households (44%). This is reflective of the national level where women in wage employment constituted

only 36.9 percent of the wage employees in 2020 (KNBS, 2021) [14]. The results are consistent with Oxfam (2020) [15] that reported that a larger proportion of men (44%) compared to women (35%) derive their main source of income from casual labour. It is also consistent with Gikandi (2020) who reported that many women and girls in the informal settlements engage in informal activities such as unpaid care work, which are often unaccounted for. Paid jobs are associated with more stable income relative to own run small businesses. The implication is that female headed households in the informal settlements were more disadvantaged economically even before the onset of COVID-19.

Respondents were asked to indicate whether there was loss of employment for the household head, and/or another male/female member of the household. They were also asked to specify whether their income diminished, increased, lost all income or if they did not experience any change in income since the onset of COVID-19. A summary of the responses is presented in Table 2 showing that households experienced loss of employment and incomes during the pandemic.

Table 2: 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 OF DATA: HOUSEHOLD SURVEY DATA (2021)

Most (57%) of the households in the informal settlements lost employment, 63 percent of whom were female headed households and 51 percent were male headed households. Total loss of income was reported in 24 percent of the sampled households. Slightly more male headed households (27%) compared to female headed households (21%) were affected. The FGD participants in Obunga and Nyawita informal settlements reported that more men compared to women suffered total loss of income. According to the respondents, women were less affected because most of the activities that they engaged in such vending of vegetables and other foods, and provision of laundry services to households only reduced but did not stop completely. This is opposed to men who were mostly in paid employment, which stopped due to COVID-19. Diminished income was reported by 68 percent of the households with a higher incidence in female headed households (70%) compared to male headed household (66%). Overall, only six percent of all households did not experience any change in income, and less than one percent experienced increased incomes. The results show that both female and male-headed households experienced loss of incomes, albeit by different magnitude. Oxfam (2020) had reported that by May 2020, the source of income for 96 percent of the households in Nairobi's informal settlements had been affected impacting 96 percent female headed households and 94 percent male headed households. The loss of income was attributed to reduced demand for labour, closure of industries where majority of the household members

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worked as casual labourers, and reduced demand for women domestic workers. Koos, Hangoma and Mæstad (2020) [16] also reported that wage employment levels dropped significantly in Ethiopia (89%) and Nigeria (85%) after the lockdowns. This is compared to self-employment, which fell by 64% in Ethiopia and 43% in Nigeria.

In respect to location (Table 3), the highest incidences of diminished incomes were reported by households in Nyawita (82%) and Mathare (70%) informal settlements. An average of 32 percent of the households in Kibra and Obunga informal settlements reported highest incidences of total loss of incomes. Loss of employment was more pronounced in Kisumu County where on average 60 percent of the households in Nyawita and Obunga informal settlements experienced loss of employment compared to 53 percent of the households in Kibra and Mathare informal settlements in Nairobi City County.

Table 3: Loss of income and employment by location

Nature of income loss/Informal settlement	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 OF DATA: 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 4).

Table 4: 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 OF DATA: HOUSEHOLD SURVEY DATA (2021)

Incidence of severe food insecurity in the overall sample was 16 percent. 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 2). The study by Koos, Hangoma and Mæstad (2020) across different countries in Africa also reported that food insecurity increased and remained high throughout the period of April-October 2020. Niger, Mali, and the Democreatic Republic of Congo (DRC) were among the worst-off countries where more than half of the households reported insufficient food consumption. According to Gikandi (2020), the rising financial and food insecurity heightened the vulnerability of women and girls to sexual exploitation, rape, domestic violence, child abuse and other forms of sexual and gender. According to the FGD participants, girls and women particularly faced a number of challenges and difficulties following the loss of household incomes due to COVID-19. They could not obtain personal use products and other basic necessities including house rent and became vulnerable to sexual harassment, exploitation and abuse as they sought support to address their needs. There were increased conflicts between young girls with their parents, and between married women 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 Mitigate Income Losses due to COVID-19:

The survey respondents were asked to indicate the copying strategies adopted by the households to mitigate income losses experienced due to COVID-19. The copying mechanisms included eating less or skipping a meal; receiving financial help from a family member; a member of the household migrating to live with another family member; household member begging from well-wishers; household sending some children to rural home to ease financial burden in the household; and a young female member of household eloping but household members did not follow up (Table 5). The latter was used to capture incidence of early or forced marriages by young girls due to economic hardship in the household.

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Table 5: 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 OF DATA: HOUSEHOLD SURVEY DATA (2021)

The survey results show that majority (68%) of the households mitigated the income loss due to COVID-19 by eating less or skipping a meal. Eating less or skipping a meal as a coping strategy to income losses due to COVID-19 indicate how the pandemic increased household risk to food insecurity and drifting into poverty. A slightly higher proportion (69%) of male headed households compared to female headed households (67%) ate less or skipped a meal, and/or begged to mitigate the income loss due to COVID-19. Other studies (Oxfam, 2020; and Pinchoff, Austrian, Rajshekhar, *et al*., 2021) also reported that reduced feeding was used as a coping mechanism by households from informal settlements in Nairobi. The findings of Oxfam (2020) showed reduced feeding as the most common coping mechanism adopted by households. According to the study, households reduced the number of meals eaten per day (53%), ate less portions of meals (36%), borrowed or shared food (31%) and limited adult intake of food to prioritize children (17%). Amendah, et al. (2014) also found that the most frequently used coping strategy by households in informal settlements is reduction in food consumption.

Further analysis of the survey data show that the incidence of eating less or skipping a meal was highest among female headed households (58.1%) compared to male headed households (52.4%). The coping strategy was mostly used by households in Mathare informal settlement (78.5%) followed by Kibra and Obunga informal settlements where 58.5 and 57.3 percent of the households surveyed adopted the strategy, respectively (Table 6). Use of the strategy was lowest amongst households in Nyawita informal settlement (26.9%).

The incidence of eating less or skipping a meal as a coping strategy was highest among female headed households in Mathare informal settlement (93.3%) and male headed households in Kibra informal settlement (72%). The survey results are consistent with Pinchoff, Austrian, Rajshekhar, *et al*., (2021) who found the probability of women in Mathare informal settlement reporting skipping meals to be higher than that of men.

Table 6: 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 OF DATA: HOUSEHOLD SURVEY DATA (2021)

Other coping strategies used by households to mitigate impact of income losses due to COVID-19 (Table 5) included receiving of financial assistance from another family member (25%), begging (24%), sending children to rural home (24%) and migration by a family member (23%). As illustrated in Table 5, a relatively higher proportion of female headed households received financial assistance from another family member had a member of the household migrate to live with another family member and/or experienced early or forced marriage of a young female member of household. Seven (7) per cent of all the households interviewed experienced early or forced marriage of a young family member during COVID-19 (Table 5). Early or forced marriage was used by the households to mitigate income loss due to the pandemic. Participants in all the 12 FGDs in the study reported that early or forced marriage of young girls had increased during the pandemic. They attributed this 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. Some girls sought financial support from boyfriends, or engaged in transactional sex to get money for food and other needs.

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. However, 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. Hawking, begging, sale of food items, and performing laundry and cleaning jobs particularly by girls can expose young girls to abuse and exploitation, sexual exploitation, increase teenage pregnancies and early marriages with long term negative consequences in their development (Ouédraogo, Ebrima, and Huang, 2017).

Women mainly coped to income losses due to COVID-19 by hawking food items within the estates, borrowing food items from shops, borrowed money from shylocks and digital money

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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. Participants in all the women only FGDs and Key informants in Kisumu and Nairobi reported that transactional sex increased among adolescents, young and older women during COVID-19 because it was perceived as a ready source of income for food and other household needs including rent. One teenage in the girls-only FGD conducted in Nyawaita informal settlement reported that *"there is a building near our house where many girls go in to engage in sex for money during the long school break due to COVID".* Transactional sex acted as an alternative means for sourcing money mostly to purchase food and meet other basic household needs, mainly food and rent. Many of the adolescent and young girls also engaged in sex for money due to widespread *"sponsor"* mentality among teenagers, and peer pressure. In Mathare informal settlement girls and women said that sex was used as a means of benefiting from the COVID-19 social assistance programmes unveiled by the government. Some government officers who were responsible for identifying and registering beneficiaries in programmes such as *Kazi Mtaani* demanded bribes and the young girls and women who could not afford monetary bribes were asked to offer sex in exchange. Some landlords in the locality sexually exploited their vulnerable tenants who could not meet their monthly rental obligations.

Negative coping strategies used to generate income to purchase food and meet other basic household needs, benefit from the social assistance programme and/or receive rent waiver from the landlords show the disproportionate burden of income loss during the pandemic on women and girls. Jacobson, Regan, Heidari, & Onyango, (2020) [17] also identified food insecurity as one of the common reasons why individuals engage in transactional sex. In the context of the current study, submitting to sex demands to receive benefits from government programmes or to continue living in houses for those in rent arrears is sexual exploitation through coercion. The loss of income and livelihoods due to COVID-19, therefore, increased vulnerability of girls and women to sexual exploitation, which is an abuse to their human rights.

Inferential Analysis Results

Logit regression models were estimated to provide an understanding of how the coping mechanisms adopted by households to mitigate income losses due to COVID-19 varied across study locations and socio-economic 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 to Income Loss Due to COVID-19 by Eating Less or Skipping a Meal:

Eating less for extended periods of time compromises people's health and can have negative impacts particularly 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).

A logit regression model (see section methodology) was fitted to test the effect of location, gender of household head, marital status of household head, loss of employment, loss of income and the number of children in the household on the probability of a household eating less or

skipping a meal to cope with the income loss due to COVID-19. The estimation results are presented in Table 7.

Table 7: Logit regression results for eating less or skipping a meal during COVID-19

Dependent Variable: Ate less or skipped a meal = 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	

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

The estimation results reveal that a household in Mathare informal settlement was 23.9 percent more likely to eat less or skip a meal to mitigate income loss due to COVID-19 compared to a household in Kibra informal settlement. However, a household in Nyawita informal settlement was 27.6 percent less likely to eat less or skip a meal to cope with the income loss relative to a household in Kibra informal settlement. There was 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 results confirm that the incidence of eating less or skipping a meal as a coping strategy to income losses due to COVID-19 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 socio-economically 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 coping mechanism between male and female headed households. However, the positive marginal effect for female headed households shows that female headed households are more likely to eat less or skip a meal to mitigate income loss due to COVID-19 than male headed households. 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

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diminished or no change in income. Relative to those households that did not experience loss of employment, a household that suffered loss of employment was 13.4 percent more likely to eat less or skip a meal. Similarly, a household that experienced total loss of income was 14.7 percent 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. From the estimation results, households whose heads were single were 14.1 percent less likely to eat less or skip a meal compared to households headed by those who are married, widowed, divorced or separated. The study did not establish any statistically significant difference in eating less or skipping a meal between households whose heads were married, widowed, divorced or separated. The findings, therefore, negate the study by Pinchoff, Austrian, Rajshekhar, *et al*., (2021) who argued that women who are divorced, separated or widowed were more likely to skip a meal than those who are married.

The findings imply that gendered food insecurity problems during crises vary by location and other socio-economic characteristics of households. It is a pointer that food relief and other social protection programmes that aim to avert food insecurity among socio-economically vulnerable populations during crises should factor in location and socio-economic status of households.

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 children to rural home to ease the household's financial burden. Such support system is expected to increase financial resilience of households during cries. Amuyunzu-Nyamongo & Ezeh (2005) [18] in a study of four informal settlements in Nairobi found that the urban poor used informal support mechanisms in dealing with financial calamities. Estimated variations in use of these support systems show that households in Mathare and Obunga informal settlements were 26.3 and 20.4 percent, respectively more likely to receive financial support from a family member compared to a household in Kibra informal settlement (Table 8).

Table 8: Logit regression results for use of social support systems by households

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*** (0.0657)	-0.3015*** (0.0547)	0.6219*** (0.1359)
Location_ Obunga	0.2035*** (0.0743)	-0.2311*** (0.060)	0.5592*** (0.1424)
Location_Nyawita	-0.1459 (0.1032)	-0.2788*** (0.0545)	-0.0393 (0.1141)
Female-headed household =1; male=0	0.0340 (0.0805)	-0.0364 (0.0685)	-.0919* (0.0496)
Loss of employment in the household	0.0596 (0.0661)		-0.0536 (0.0441)
Age in years		0.0021 (0.0028)	
Household lost all income		-0.1416** (0.0556)	-0.0548 (0.0405)
Household size		0.0497 (0.0322)	
Single	-.0380 (0.0917)	0.2575*** (0.0989)	0.07902 (0.0697)
Separated	0.2402 (0.0701)		0.1797* (0.1093)
Divorced	-.1525 (0.228)		
Widowed	-0.1144 (0.1248)	-0.0673 (0.0896)	
Experienced severe food insecurity	-0.4234*** (0.1007)	-0.2518*** (0.0443)	0.2375* (0.1395)
Number of children <5year	0.0435 (0.0574)		
Number of children 6-17years	.01434 (0.01858)	-0.0997* (0.0538)	0.01829 (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

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

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The computed marginal effects for the two informal settlements were positive and statistically significant at 1 percent level of significance. Though the probability of a household in Nyawita informal settlement receiving financial support from a family member was 14.6 percent lower than that of a household in Kibra informal settlement, the difference was not statistically significant. Receipt of financial support as a mitigation mechanism to income loss due to COVID-19 did not significantly differ for households on account of gender of the household head, marital status of neither the household head nor the number of children of different ages in a household.

Households that experienced severe food insecurity were more vulnerable to drifting into poverty compared to households that did not experience severe food insecurity. The severe food insecure households were 42.3 percent less likely to have received financial support from a family member during COVID-19. The implication is that lack of social support mechanism to severely food insecure households increase their vulnerability, thus requiring targeting with the cash transfers for the socio-economically vulnerable populations.

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 results show the contrary. Households that lost all income and those that experienced severe food insecurity were 14.2 and 25.2 percent, 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 per cent 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. However, a female headed household was 9.2 percent less likely to have sent some children to rural home compared to male headed households.

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.

Households in Mathare, Nyawita and Obunga informal settlements were 30.2, 27.9 and 23.1 percent less likely to have had any of their members migrate to live with another family member compared to a household in Kibra informal settlement. However, households in Mathare and Obunga informal settlements were 62.2 and 55.9 percent, respectively more likely to have sent some children to their rural home to ease the household's financial burden compared to those in Kibra informal settlement. This means that the households in Mathare and Obunga informal settlements have relatively stronger social networks in their rural homes compared to the cities.

Early or Forced Marriage as a Copying Strategy to Income Loss Due to COVID-19:

Results of a logit regression model fitted to establish variations in the use of early or forced marriage by households in the four informal settlements show that the vice was used more by the households in Nyawita informal settlement compared to those in Kibra, Mathare and Obunga informal settlements (Table 9). Households in Kibra and Mathare informal settlements were 32.3 and 18 percent, respectively less likely to have experienced early or forced marriage of a young female member of the household during COVID-19 compared to households in Nyawita informal settlement. The estimated marginal effects were statistically significant at one percent 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 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 9: Use of early or forced marriage as a copying 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	

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

Relative vulnerability of households in informal settlements in Kisumu to early or forced marriages of girls and young females is supported by survey data. It shows that fewer households in Obunga and Nyawita informal settlements received social assistance from the government compared to those in Mathare and Kibra informal settlements in Nairobi. In this respect, the proportion of households in Obunga informal settlement who received social assistance support from the government declined from 25 percent before COVID-19 to 21.4 percent during COVID-19. Similarly, only 14.6 percent of the households in Nyawita informal settlement reported to have received social assistance support during COVID-19 compared to 31.7 percent who received the support before COVID-19. In contrast, 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. 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

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pandemic. The implication is that though the Kenya government unveiled social assistance programme 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 that experienced loss of employment during COVID-19 had a higher probability (15.3%) of reporting early or forced marriage. This is consistent with Malhotra (2010) [19] which identified poverty and lack of job opportunities as some of the causes of early marriage among young girls.

CONCLUSIONS

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. Consequently, households resorted to different coping mechanisms to mitigate the income losses. The strategies adopted included reduced eating or skipping a meal, and use of social support systems. Use of reduced eating or skipping a meal to mitigate income loss due to COVID-19 is gendered and varies with location and other household characteristics.

Adolescent girls, young and older women used risky and negative coping strategies to mitigate income losses due to COVID-19. These included transactional or exploitative sex, child labour, begging, hawking, and/or early or forced marriage. Early or forced marriages among girls and young women were also fueled by long school closures and peer pressure. Use of transactional or exploitative sex by girls and women to access government support for the socioeconomically vulnerable population, or get rental waivers 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 may contribute to increased teenage pregnancy and early 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 the poverty.

The loss of income due to COVID-19 coupled with weak targeting of the government's social assistance programmes heightened the gender inequalities that existed even before the pandemic. Male headed households were particularly more advantaged than the female headed households 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 FOR POLICY AND ADVOCACY

Government departments of gender both at national and county 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.

Government interventions to cushion socio-economically vulnerable households should be based on proper targeting criteria. Considerations of gender, location of households, and socio-economic characteristics of households should be considered as key indicators for enlisting of programme beneficiaries. Further, the criteria for enlisting of beneficiaries to the social protection programmes should be open and transparent, and free from harm, manipulations and abuse of the rights of the vulnerable girls and women.

During crises such as those experienced during the pandemic, the government through the Ministry of Education should implement activities that keep students busy and enhances continuity of learning to avert early marriage and the resultant negative consequences on girls and young women. Furthermore, county government departments for gender, youth and cultural services in collaboration with community and faith-based organizations should design and implement sensitization programmes targeting girls and young women. The programmes should aim at empowering girls and young women to shun early marriage and transactional sex.

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