

ORIGINAL ARTICLE

Mitigating household psychosocial and economic impact of Coronavirus pandemic in Mathare slums, Nairobi, Kenya: An initiative by the German doctors in Kenya

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Abstract. The psychosocial and economic impact of Covid-19 Pandemic in Mathare slums, Kenya, were adverse which necessitated mitigation strategies to be employed to cushion the most vulnerable and help them cope with the new 'state of affairs'. The pandemic was characterized by a surge in the respiratory infections, unemployment, households going hungry, gender-based violence in families, child abuse cases and increased rates of teenage pregnancy. Retrospective case study design was employed; secondary data from hospital departments were extracted for analysis from March 2020 to December 2021. Interventions in focus were health service provision, gender based and child abuse services, food distribution, wet-feeding program, business grants and house rent grants. The most common burden faced by Mathare residents was food insecurity which was mitigated by giving 9,423 Patients' food baskets while 1423 patients enrolled to the wet feeding program. Gender Based Violence services provided doubled in the year 2021 with physical and emotional violence being more common than sexual violence which was at 6.2%. Child abuse services were provided more in the year 2020 and 96 teenage mothers were assisted to go back to school. About 158 families received rent grants; which was a 30.4% increase from the year 2020. There was a 75.5% increase in the year 2021 of residents who received business grants. In a pandemic the effects are beyond health hence it is necessary to manage patients comprehensively using a multi-sectorial approach. However, it is important to put regulations to avoid overdependence.

Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic originated from Wuhan city, Hubei province, China in December 2019. Three months later the World Health Organization (WHO) categorized the coronavirus as a pandemic on March 11th 2020. The virus was noted to lead to severe respiratory disorder with eventual death of the infected patient. The Global Committee on Taxonomy of Viruses (ICTV) further categorized it into four subgroups, named as α -, β -, γ -, and δ (1). The infection is transmitted from human to human by droplets inhalation and lead to a significant number of severe cases and deaths that overwhelms the health care system (2).

The novel COVID-19 infection is more than a health crisis; it has led to a negative psychosocial and economic crisis at the global level. The number of infections has been soaring, Europe and United States of America have faced the full brunt of the virus, and there were more infections and deaths in this region which is attributed to its aging population. Fatalities in Africa remained low owing to its youthful population even though the continent is still not off the hook due to higher levels of malnutrition and diseases meaning Covid-19 could be deadlier for the African population. Africa is also the most rapidly urbanizing region in the world, with 60% of urban settlements being informal. The populations in informal settlements often live in precarious housing where families share rooms and houses. People in informal settlements are involved in low paying casual jobs that do not adhere to occupational safety procedures. The lack of alternative sources of income also means a higher risk that people will not adhere to social distancing policies in African countries. In this way, poverty can impact contagion, and contagion can impact poverty (3). The pandemic has caused unprecedented challenge to public health, food systems and the world of work (4). Informal settlements and overcrowded public spaces such as buses and markets in African countries may spread COVID-19 in unpredictable ways. Africa is the continent with the greatest proportion of the population with no access to social protection, better health and largest share of poverty (3). The effect has been worst among the most vulnerable populations (the poor, elderly and people with disability). Early evidence indicates that the health and

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economic impacts of the virus are being borne disproportionately by poor people in the society. People in informal settlements lack access to running water hence tend to suffer more from the pandemic and its aftermath (5). There has been a rapid increase of COVID-19 cases in Kenya since the announcement of the first case on 20th March 2020. Kenya has the highest number of reported infections and deaths compared to its neighboring countries in the East and Central Africa. Currently, the impact and spread of infections has been exacerbated by the high number of people living in poverty; a weak health infrastructure; overcrowding in informal settlements; and poor access to basic services such as clean water, sanitation and hygiene (6). The pandemic has poverty implications well beyond the humanitarian effects such as greater social and gender inequality, negative impact on human rights, expansion of the informal sector and regression of progress across the Sustainable Development Goals (2).

In Kenya, poverty is expected to rise by 2 million people. Newly categorized poor Kenyans in intra-COVID-19 era are described as educated, young at aged and living in urban areas. The poor in pre-COVID-19 era were characterized as old aged, uneducated and living in rural areas. Newly poor households also tend to have small number of members with a larger share of working-aged individuals. Understanding these characteristics may be essential in mitigating COVID-19 impact in households (7). The pandemic exposed flaws that were often ignored in healthcare system; Kenya is one of the developing countries with fragile healthcare system. Using the WHO International Health Regulations Monitoring and Evaluation Framework and vulnerability and the Infectious Disease Vulnerability Index, Kenya had moderate risk score high vulnerability to detect and respond to Corona cases (2).

The economic consequences of the pandemic are likely to have a far greater impact on the long-term health, well-being and poverty levels of the population as a whole than the predicted fatalities caused directly by the disease (6). An estimated 25 million households have suffered from one or more of these shocks since inception of the pandemic. This ranges from 26% of households in Ethiopia to 56% of households in Nigeria. Some of these shocks include job losses, business closure, increasing food prices and illness or death of an income earner (8). If this situation is not addressed appropriately through policy reforms then the social crisis created by the pandemic may result to increase inequality, exclusion, discrimination and global unemployment in the medium and long term. There is need to instill comprehensive, universal social protection systems, when in place it will play a much durable role in protecting workers and in reducing the prevalence of poverty, since they act as automatic psychosocial and economic stabilizers. They always provide basic income security, thereby enhancing people's capacity to manage and overcome psychosocial economic shocks (5).

Problem statement

The inception of COVID-19 pandemic brought fear and confusion to the world. The situation was even worse in Africa and other low- and middle-income countries with weak health system structures. In Africa, a continent already ravaged with

uncontained poverty, communicable diseases, malnutrition and an increasing burden of non-communicable diseases, forecasted death and more suffering to its people. The impact of COVID-19 has stretched far beyond fatalities and morbidity to affect mental health, economy of households and the way people socialize in Kenya. People in informal settlement like Mathare have special problems like lack of free-flowing water, overcrowding in houses, poorly ventilated houses and poverty which may worsen the infection rates in this population.

Study rationale

There is scarcity of data on psychosocial and economic impact of COVID-19 among slum dwellers in Kenya. Understanding a situation is always the first step in solving a problem. Data on this subject is essential in informing timely and adequate policy and programmatic responses. The past pandemics have shown that health and economic consequences, as well as mitigation measures, have critical socioeconomic effects that unfold across populations and generations. Those populations that were already in vulnerable conditions like those in informal settlements of Africa are likely to be the most severely affected, as their capacity to cope with shock is limited. Without updated psychosocial and economic data, it is very challenging to efficiently allocate resources and assistance programs, to the most affected populations. It is advised to always provide timely psychosocial and economic data which is needed to develop targeted measures to help alleviate the impacts of the crisis (7). Challenges in informal settlements hamper the fight against COVID-19 infections. The populations has been depressed by the existing psychosocial-economic challenges and now COVID-19 has complicated the situation further. People have been affected economically by the loss of jobs, psychologically by the grim picture of COVID-19 deaths and socially by introduction of stringent measures that discourage socialization. This pandemic is new to both developed and developing countries. There is no policy that guides on mitigating the effects of the pandemic hence this study will highlight some of work done in Mathare slums aimed at alleviating psychosocial and economic impact of COVID-19. This will contribute positively to the existing literature on psychosocial and economic impact of COVID-19 and further be used to formulate policies.

General objective

To establish strategies used in mitigating household psychosocial and economic impact of COVID-19 pandemic in Mathare, an urban Kenyan informal settlement.

Specific objectives

To highlight psychosocial economic intervention strategies used to mitigate COVID-19 pandemic in Mathare slum, Kenya.

Research questions

What are the psychosocial economic intervention strategies that can be used to mitigate social impact of COVID-19 pandemic in Mathare slum, Kenya?

MITIGATING HOUSEHOLD PSYCHOSOCIAL AND ECONOMIC IMPACT OF COVID—19 PANDEMIC; CONCEPTUAL FRAMEWORK

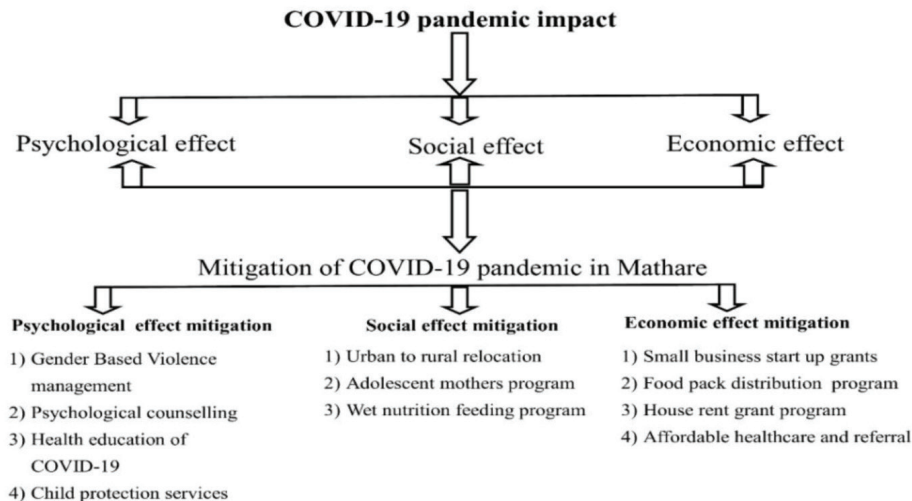


Figure 1. Conceptual frame work.

Hypothesis

The pandemic has had negative psychosocial and economic effects to Mathare residents and actions taken to alleviate its effects will mitigate the situation.

Theoretical framework

The theoretical frame work used to conceptualize psychosocial and economic impact of COVID-19 pandemic was adopted from one used by the World Bank in West Africa in the year 2014-2016 during the Ebola virus outbreak (Fig. 1) (7).

The psychosocial and economic impact of COVID-19 can be theorized through two distinct channels.

Direct and indirect effects of COVID-19 infection. This happens when the principal income earner in a family becomes ill and the ratio of active members to dependents falls. The effect may be exacerbated by lost earnings and expenditure from taking care of an ill family member or funeral cost upon his/her death. Morbidity and limited resilience will be another source of impoverishment and reinforce existing factors, in turn limiting the ability of vulnerable households to escape from- and stay out of -poverty.

Disinclination behavior. This is the second channel which result from the fear of getting infected with the disease and in the process leads to fear of association with others and reduces labor force participation, closes places of employment, disrupt transport, motivates government to close borders and restrict entry of citizens from afflicted countries. It motivates private decision makers to disrupt trade, travel and commerce by cancelling scheduled commercial flights and reducing shipping and cargo services. There is limited socialization, fear and panic of the pandemic further deteriorates the economic status of household and the country in general (9).

Materials and methods

Research design. It was a retrospective case study; secondary data was used from hospital departmental records.

Study location. This was a community-based study conducted at Mathare valley slums in Nairobi County-Kenya. German doctors-Baraka Health center is a level 3 facility that offers health related services to Mathare residents. It is a not for profit facility serving an average 4000 patients in a single month. COVID-19 pandemic posed a unique challenge to Baraka Health center and the entire health system in Kenya. Baraka Being a community hospital had to adopt unique interventions to mitigate COVID-19 effects upon Mathare residents. During this period there was surge in the respiratory infections, unemployment, households going hungry, gender-based violence in families and child abuse including teenage pregnant.

Target population. Household members of Mathare valley area 4A slum identified by community health volunteers and passed social assessment.

Inclusion criteria

1. Poor households in Mathare valley area 4A, identified by the community health volunteers.
2. Successfully passing social workers and child protection officer assessment (where indicated).

Exclusion criteria

1. Household members living outside Mathare valley area 4A.
2. Those with Mathare residency of less than 6 months.

Study period

From January 2021 to August 2022, 8:00 am to 4:00 pm, excluding public holidays and weekends.

Sample size determination

The sample size was determined using single population proportion formula (10).

$$n = \left[\frac{z_{\alpha/2} \cdot \sigma}{E} \right]^2$$

A 95% degree confidence corresponds to $\alpha=0.05$.

$$\alpha/2 = 0.025$$

In the table of the standard normal (z) distribution, an area of 0.475 corresponds to a z value of 1.96. The critical value is

$$\text{therefore } z_{\alpha/2} = 1.96.$$

The margin of error=1 and the standard deviation=6.95. Using the formula for sample size, we can calculate:

$$n = \left[\frac{z_{\alpha/2} \cdot \sigma}{E} \right]^2 = \left[\frac{1.96 \cdot 6.95}{1} \right]^2 = [13.62]^2 = 185.55 = 186$$

We need to include 186 households in the study.

Sampling method

Purposive sampling technique was used.

Data collection procedure

1. Community health volunteers were involved in identifying needy households that benefitted from food pack distribution programs and business startup grants.
2. When interacting with patients, healthcare workers at Baraka Health center (which serves Mathare residents) were also involved in identifying patients in need of psychosocial and economic aid.
3. Social worker will conduct an assessment to determine eligibility. Beneficiary information will be noted by the social work department.
4. Gender based violence and child abuse cases handled at the facility were recorded at the GBV and child protection desk. Various relevant procedures were applied by the officers manning the dockets to help the victims.
5. Patients diagnosed with mental health disorders linked to the pandemic were referred to the counseling department for action. In the department patient data was recorded.
6. Individuals who have lost source of livelihood and unable to pay their rent, through community health volunteers and social worker's assessment recommendations, were offered rent grants and those who have expressed willingness to relocate to their rural areas will be given transport facilitation fees to allow that.
7. Baraka Health Center serves the Mathare community by offering health services free of charge including ambulance referral. Patients presenting with COVID-19 like symptoms were treated and referred appropriately. Patient

records are stored by the health information department at the facility.

Data analysis. Data was entered into SPSS version 21, analyzed into rates and comparative analysis was done to elaborate on difference over time.

Ethical consideration. German Doctors is a recognized as a non-profit organization under tax number 206/5863/0898 and are exempt from corporate income tax VAT No. DE292039254 non-profit and tax-exempt (11). Participants were made aware of German Doctors' intention to use this data for research and fundraising hence verbal consent was sought. Permission to access data was granted by German Doctors, Baraka Health center administration. Data generated in the process was stored in a computer folder and encrypted with a password.

Results

During the study period, a total of 14,609 persons benefitted from COVID-19 psychosocial economic impact mitigation. There was a 17.5% increase in the number of beneficiaries from year 2020 to year 2022. Most people benefitted from food packs with a total of 9,423 packs distributed; there was a 20.1% increase of the food distributed from year 2020 to 2021. The highest increase pegged at 75.5% was observed on small business grant recipients which was highest in the year 2021. There was a program to assist teenage mothers to enroll back to school, in the exercise commenced in the year 2022 hence there was no data the previous year. There was a 7.1% drop in the number of child abuse victims; year 2020 saw the highest cases compared to year 2021 (Table I).

Discussion

Wet feeding. The facility has a nutrition center that serves the community by treating adult and child malnutrition. It offers cooking lessons to deserving individuals, at the center, children suffering from cerebral palsy undergo physiotherapy and other follow ups. During the year 2020-2021 when COVID-19 infections were at their peak, there were a total of 1423 patients under the wet feeding program and the majority of them were children. Year 2020 saw the highest number of patients under the wet feeding program (917 patients); in 2021 there was a 29% drop to 506 patients. This drop can be attributed to various austerity measures taken up by families to cope with the tough COVID-19 times which included but not limited to relocating to rural homes and relief food offered by NGOs and philanthropists.

Rent subsidies. Loss of employment, slowed economic growth, movement restrictions and curfew led to reduced earnings to Mathare residents whom most of them relied on the informal sector to earn their livelihoods. Affording basic needs like housing became a real challenge and those who had means relocated to their rural homes, others, who form the majority defaulted on rent. Some landlords opted to reduce rent by a certain percent as a consideration of the ongoing cash crunch but some opted to lock other residents out of their houses for failure to pay the rent. The community liaison department within Baraka Health center works closely with the community in community health and identification of the mostneedy in the

Table I. Interventions employed in mitigating COVID-19 impact in Mathare.

Interventions	Year 2020	Year 2021	Total cases	% change
Wet feeding	917	506	1,423	28.9
Food packs	3,763	5,660	9,423	20.1
House rent grants	55	103	158	30.4
Small business grant	12	86	98	75.5
Teenage mothers enrolled back to school		96	96	100.0
Gender based violence	754	1,551	2,305	34.6
Child abuse	303	263	566	-7.1
Acute respiratory syndrome	827	848	1,675	1.3
Total number of cases	5,804	8,265	1,4069	17.5

community, in the process, 158 families received rent grants to keep them in their houses. There was a 30.4% increase in the number of families that sought rent grants from the year 2021 (103 families) than the year 2020 (55 Families). Households were sleeping hungry and through the community liaison office there were beneficiaries of food packs issued.

Food packs. In the year 2020 there were 3,763 families that received food packs, year 2021 saw a 20.1% rise to 5660 beneficiaries. These interventions are in line with a World Bank report of 2021 titled 'Socioeconomic Impacts of COVID-19 in Kenya on Households' which highlighted the above interventions as a COVID-19 pandemic mitigation. This was noted as a short term intervention of mitigating effects of COVID-19 pandemic among Mathare residents (7).

Business grants. With the hard economic times coupled with increasing prices of household goods, there was a need to empower community members by supporting small businesses that were adversely affected during the pandemic (7). Those identified through social screening received money as business grants from our community liaison office. In the year 2020 only 12 individuals were supported to start business, this number grew substantially by 75.5% to 86 individuals who started an income generating activity through grants from this program. This was noted as a sustainable intervention to both the organization and the beneficiary since it weans off dependency of the recipients to the organization

Gender based violence, teenage pregnancies and child abuse. Education sector was gravely affected by the pandemic and school going children were forced to stay at home for more than a year in a bid to stop the spread of COVID-19 infections. In the process, there was a spike of teenage pregnancy and within our reproductive health department, 96 cases were recorded. Teenage pregnancy was an evidence of girl child sexual abuse; some of the girls were forced into transactional sex with an aim of earning money to fend for their families. A program aimed at taking teenage mothers back to school was initiated in the year 2021 and that explains absence of data in the year 2020. Records from the child protection department at Baraka health center indicated 263 cases in the year 2021 which was a 7.1% drop from the year 2020 that record 306 child abuse cases. Gender

based violence was more rampant in 2021 recording 1551 cases against year 2021 cases of 754, this was a 35% increase in these cases. Frustration of job losses, hunger and failed business can be blamed for the spike of gender-based violence cases within households in Mathare slums.

Acute respiratory distress syndrome. Healthcare provision is the main business of Baraka Health center, COVID-19 was characterized by respiratory problems and lung damages that resulted in death. Cases of Acute respiratory distress syndrome 827 cases in 2020 to 848 in 2021, this was a 1.3% increase of the recorded cases. Adequate treatment was instituted and appropriate referrals made for extremely severe cases that required inpatient care.

Conclusions

In mitigating effects of COVID-19 among households in Mathare, it was noted that some interventions like food packs offered short term relief while others like business grants, if implemented well may offer long term solution to households. Psychological effects of the pandemic might be the reason that drove up the cases of child abuse, teenage pregnancies and gender-based violence. There was a considerable effect on Mathare residents' economic status with loss of employment, swelling numbers into wet feeding programs and house rent grants recipients.

Recommendations

- In disease outbreaks and pandemics, it is necessary to manage patients comprehensively by being considerate to their diseases, social interactions at home and in the community.
- Be sensitive to their economic situation and supplement their needs resulting from the pandemic effects to avert cascading consequences from the situation.
- Food programs, income generating activities and support systems for physical, emotional and sexually abused individuals are necessary to rehabilitate the victims back to their norms.

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Authors' contributions

ALO, principal investigator, bore the idea and came up with, objectives, theoretical framework and conceptual framework; SN, data analysis; GA, majorly involved in discussion and drawing of conclusions.

Ethics approval and consent to participate

German Doctors is a recognized as a non-profit organization under tax number 206/5863/0898 and are exempt from corporate income tax VAT No. DE292039254 non-profit and tax-exempt¹¹. Participants were made aware of German Doctors' intention to use this data for research and fundraising hence verbal consent was sought. Permission to access data was granted by German Doctors, Baraka Health center administration. Data generated in the process was stored in a computer folder and encrypted with a password.

Availability of data and materials

All data generated or analyzed during this study are included in this published article.

Conflict of interest

The authors declare no potential conflict of interest.

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References

1. Mishra NP, Das SS, Yadav S, Khan W, Afzal M, Alarifi A, Kenawy ER, Ansari MT, Hasnain MS and Nayak AK: Global impacts of pre- and post-COVID-19 pandemic: Focus on socio-economic consequences. *Sensors Int* 1: 100042, 2020.
2. UNDP. Articulating the Pathways of the Socio-Economic Impact of the Coronavirus Pandemic on the Kenyan Economy. *Policy Br.* 2020;4/2020(April): 33.
3. Life Expectancy for World Regions.
4. Kimberly C: Impact of COVID-19 on people's livelihoods, their health and our food systems [Internet]. World Health Organization. [cited 2022 Jan 12]. pp4-7, 2020. Available from: <https://www.who.int/news/item/13-10-2020-impact-of-covid-19-on-people's-livelihoods-their-health-and-our-food-systems>.
5. COMESA. Common Market for Eastern and Southern Africa FINAL REPORT EVIDENCE FROM COMESA REGION. 2020.
6. Owino E: Socioeconomic impacts of Covid-19 in Kenya-Development Initiatives [Internet]. 2020 [cited 2022 Jan 10]. Available from: <https://devinit.org/resources/socioeconomic-impacts-covid-19-kenya/>
7. Bank W: Socioeconomic Impacts of COVID-19 in Kenya on Households [Internet]. Socioeconomic Impacts of COVID-19 in Kenya on Households. World Bank, Washington, DC, 2021 [cited 2022 Jan 10]. Available from: <https://openknowledge.worldbank.org/handle/10986/35173>.
8. Josephson A, Kilic T and Michler JD: Socioeconomic impacts of COVID-19 in low-income countries. *Nat Hum Behav* 5: 557-565, 2021.
9. Socio-Economic Impact of COVID-19 in Kenya|SDG Philanthropy Platform [Internet]. [cited 2022 Jan 12]. Available from: <https://www.sdgphilanthropy.org/Socio-Economic-Impact-of-COVID-19-in-Kenya>.
10. How do I calculate sample size for interventional studies or RCTs? [Internet]. [cited 2022 Feb 10]. Available from: https://www.researchgate.net/post/How_do_I_calculate_sample_size_for_interventional_studies_or_RCTs.
11. About us-Aid organization|German Doctors e.V. [Internet]. [cited 2023 Jul 25]. Available from: <https://www.german-doctors.de/en/about-us>.