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ORIGINAL RESEARCH

The impact of COVID-19 restrictions on the health and well-being of women living in informal settlements in Uganda

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Abstract

Introduction: The COVID-19 pandemic significantly impacted Uganda, with the first case reported in March 2020, resulting in extensive public health restrictions, including a lockdown, curfew, and closure of schools and workplaces. Urban residents, particularly those living in poverty in informal settlements, faced heightened challenges due to inadequate access to basic services, financial hardships, and increased caregiving responsibilities, especially for women. Women experienced heightened risks of gender-based violence and engaged in transactional sex as coping mechanisms. This study explored the strategies used by women in Kampala and Mbale cities to meet basic needs during the pandemic and their implications for HIV infection vulnerability.

Methods: Researchers conducted focus group discussions with 209 women from various age groups in Kampala and Mbale's largest informal settlements, gathering insights into their pandemic experiences. These discussions, held in local languages, explored women's social, family, and financial challenges, as well as their perceptions of HIV risks. Transcripts were translated by local language experts before analysis. The team analyzed the transcripts using NVivo version 14 software, identifying patterns and themes that revealed survival strategies employed by women.

Results: The study identified three interconnected themes that capture the complex strategies and challenges faced by women in informal settlements in Kampala and Mbale during the COVID-19 pandemic. Women struggled to cope with financial hardships and increased caregiving responsibilities, often resorting to measures like transactional sex to survive. The pandemic exacerbated vulnerabilities, heightening risks of HIV transmission and mental health challenges While support networks provided some relief, they often fell short of meeting the diverse needs of women in these communities.

Conclusions: The study shows that women in Uganda's informal settlements demonstrated resilience by taking on new roles and engaging in trading, but their reliance on transactional sex revealed power imbalances, increasing their vulnerability to gender-based violence, unintended pregnancies, and HIV infection. This highlights the urgent need for targeted interventions that address the complex challenges women face in crisis situations, which could enhance their resilience and alleviate their multiple struggles, with valuable lessons for similar contexts in low- and middle-income countries.

Keywords: Survival, COVID-19, HIV, vulnerability, informal settlements, women, Uganda

Abstract in Español at the end of the article

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INTRODUCTION

The first case of COVID-19 in Uganda was reported on March 21, 2020 [1], and as of December 6, 2023, Uganda had reported 171,876 cases and 3,632 deaths [2]. Globally, governments implemented strict public health measures to control the spread of COVID-19, including nationwide lockdowns, curfews, travel restrictions, and closures of schools and workplaces. Across the world, countries such as China, Italy, India, South Africa, Southeast Asia and many others adopted stringent lockdown policies that significantly disrupted economic activity and everyday life [3-6]. While these measures were necessary to reduce transmission, they also produced widespread economic disruption and social consequences, particularly for populations reliant on informal economies [3, 4]. Daily life was disrupted for many Ugandans when public health restrictions were implemented in March 2020, during the early stages of the pandemic, including a total lockdown with imposition of a curfew, closures of schools and workplaces (except for those offering essential services), cessation of public transport, and restrictions on the use of private vehicles [4, 7]. Although some restrictions were eased three months later, many were reimposed when the Delta variant emerged in 2021. Schools in Uganda remained closed for nearly two years [8]. Although the effects of the lockdown measures were far-reaching, residents of urban areas living in poverty were especially affected by these disruptions to daily life.

Urban residents living in poverty often reside in informal settlements characterized by unplanned and unregulated housing, high levels of overcrowding, and limited public infrastructure including roads, schools, and sewerage systems [9-11]. Income levels are much lower in such settlements compared to the rest of the city, with most informal settlement residents living hand-to-mouth and in poor sanitary conditions [12]. As a result, residents grapple with complex health and social issues, mainly due to inadequate access to basic resources such as clean water, adequate sanitation, and healthcare.

During the pandemic, lockdown-related restrictions on mobility greatly affected the Ugandan economy, disrupting the market and production supply chains [13, 14]. These disruptions disproportionately affected certain subsets of the Ugandan population, with the most profound effects being on the informal sector, which employs many urban residents living in poverty, most of whom are women and youth [15, 16]. Individuals reliant on the informal sector include casual laborers, hawkers, tailors, hairdressers, market stall operators, food vendors, urban refugees, and internal migrants, among others. It is estimated that about 23% of urban residents living in poverty lost virtually all of their daily income [17], exacerbating financial hardships as they had little or no savings [18]. This loss was felt more greatly by women, who mainly relied on informal money-earning opportunities, earned only one-half of the nominal monthly income as compared to men, and had far less savings than men [17, 19]. Further, the COVID-19 pandemic introduced an additional burden of unpaid work for women in the form of home schooling, additional childcare upon school closures, taking care of the sick, and ensuring extra precautions for hygiene and sanitation within the home [20, 21].

This increased workload affected gender power relations in the home and in the community, as women experienced emotional and physical exhaustion as they attempted to keep up with new care demands [21]. These changes, exacerbated by isolation, also increased the risk of gender-based violence and family abandonment [22-24]. Given these challenges, many women found themselves precarious situations, having to make difficult decisions about how to support themselves and their families and turning to various strategies including unprotected transactional sex [25, 26]. Experiences of gender-based violence and participation in transactional sex activities are associated with higher risk of acquiring HIV and poor sexual and reproductive health outcomes [27]. Research indicates that these risks increased during the pandemic when health services became more difficult to access [25].

In Uganda, as in many other places [28], it has been noted that most COVID-19 interventions such as lockdowns, closures of schools and markets, or travel bans were top-down, blanket measures that failed to consider socioeconomic realities of local populations, especially the burden that these measures placed on those living in informal urban settlements [18]. Those living in these conditions are a highly vulnerable group with a low capacity to adapt financially when faced with stringent public health measures [29]. Additionally, research with urban refugees living in Uganda revealed increased income insecurity, sexual violence, gender-based violence, and increased levels of anxiety during the first lockdown [18, 27].

Several studies have been published documenting the socioeconomic and gendered consequences of such measures, and the adverse health outcomes among women living in informal settlements including domestic violence, gender-based violence, income insecurity and anxiety [18, 30-35]. However, there are still few studies that attempt to understand how women and other residents of informal settlements were able to cope amidst hardship and navigate the repressive public health measures to support themselves and their families. This points to limited research showing the link between COVID-19 policies and the behavioural and social responses to the policies that contributed to the various documented outcomes among residents of informal settlements. Although it remains difficult to measure the full extent of the long-term socio-economic impacts of the COVID-19 measures on the health and well-being of communities in Uganda, understanding lived experiences can help shape policies and interventions during future public health emergencies that are contextually informed and effective for the most vulnerable popula-

tions [20, 22, 36].

This study, a component of the WomenRISE initiative developed and funded by the Canadian International Development Research Centre , explored the following issues: 1) the strategies that women living in large informal settlements in Kampala and Mbale used to meet basic needs at the individual and household levels amidst COVID-19 related restrictions, 2) how these strategies were shaped by gender power relations and structural inequalities, and 3) the impact that these may have had on their determinants of health and well-being, including greater risks for HIV infection and transmission. This aspect of the study was designed to develop an understanding of the lived experiences of women in these local contexts as a step towards co-developing inclusive strategies to address their challenges and to prepare for future pandemics.

METHODS

Study design

This study was designed and conducted in 2023, in collaboration between researchers from Makerere University in Uganda, Afrislum, a community-level NGO in Uganda, the Uganda Aids Commission, a government created initiative under the president's office to coordinate and oversee the prevention and control of HIV and AIDS activities in Uganda, and researchers from the University of Waterloo, in Canada.

Focus group discussions were conducted to explore how women living in the four largest informal settlements in Kampala and Mbale navigated and responded to COVID-19-related restrictions to meet their basic needs. The focus group questions explored women's experiences during the pandemic, including the social, familial, and financial challenges they faced, as well as HIV-related risks and vulnerabilities. FGDs were conducted in the relevant local languages (Luganda and Lugisu in Kampala and Mbale respectively, see the guide of the FGDs- supplementary material 1).

FGDs were deliberately selected as they enable the generation of community-level insights, particularly for issues that are structural rather than purely individual. The interactive nature of group discussions allowed participants to collectively reflect on shared experiences, thereby enriching understanding of how these challenges and coping strategies are produced and negotiated within broader social and economic contexts.

Ethical considerations

In accordance with the Declaration of Helsinki, ethical approval for this study was obtained at three institutions. Makerere University School of Public Health (SPH-2022-323), University of Waterloo (44725) and Uganda National council of science and Technology (HS2458ES).

Participants were informed about the purpose of the study, their right to withdraw at any time, and the confidentiality of their responses. Given the sensitive nature of discussions related to economic hardship, violence, and survival strategies, participants were explicitly encouraged to share community level experiences rather than individual experiences. Nonetheless some participants felt comfortable enough to share personal experiences. All participants provided written informed consent prior to participating.

Participant recruitment

Participants were selected through a collaborative process involving the research team in Uganda (SB, CM, ZN, SK, MA) and community leaders from each informal settlement. To minimise age-related power dynamics during discussions—common in the Ugandan context where older individuals' views are often less likely to be challenged—participants were organized by age groups (17–24 years, 25–49 years, and ≥50 years). In addition, eligibility required that participants had resided in the informal settlements for at least one year prior to the study. Participants who had lived in the informal settlement for less than one year were excluded, as they were unlikely to have sufficient experience of living in these settings during the COVID-19 lockdown periods. Before the start of the interviews, participants introduced themselves as an ice-breaking activity. Most participants had either elementary (51.2%) or secondary (37.3%) levels of education. Marital status was relatively evenly distributed, with 48.8% identifying as single and 46.4% as married. The majority (61.3%) were engaged in informal employment—including vending, small grocery businesses, and casual labour—while a substantial proportion (28.2%) reported being unemployed.

Data collection

Data collection was planned and led by AfriSlum, in collaboration with researchers from Makerere University. In total, 24 FGDs were conducted, with each group comprising between 8 and 12 participants, involving 115 women in Kampala and 94 women in Mbale, resulting in a combined sample of 209 participants. The FGDs were facilitated by women research assistants who were familiar with the local languages and the context of the study areas. The FGD assistants were trained in group discussion facilitation skills, including building trust and rapport with participants, ensuring fair participation from all, and respecting diverse experiences and opinions.

The research assistants that conducted the data collection also transcribed the audio recordings of the discussions verbatim. The transcripts were translated into English and exported into QSR NVivo software, version 14 to facilitate analysis. To preserve the integrity and nuance of the original discussions, local language experts undertook the translation process.

Data analysis

Data analysis was led by the Canadian research team in collaboration with the Ugandan researchers. The FGD data were analyzed thematically, both deductively and inductively [37]. The analysis began with a meeting of

the research team (MT, NL, LA, LJ and CRJ), during which the focus group interview guide was reviewed to generate an initial codebook. Each of these authors then independently coded the same transcript and subsequently compared their codes. These codes, together with those derived from the interview guide, formed a general codebook comprising 18 codes. The codebook was then imported into NVivo, and two authors (NL and LA) proceeded to code all 24 transcripts using this framework, while remaining open to the inclusion of emerging codes. Weekly meetings involving NL, LA, MT, LJ and CRJ were held to review the coding process and discuss emerging insights. These discussions helped clarify details within the transcripts and refine interpretations. A summary of findings across codes was later presented to all authors to ensure collective engagement with the analytic process. Following these discussions, the team agreed to undertake more detailed coding to explore nuances within selected codes of interest, particularly the code labelled "coping strategies." This decision was made given the breadth of the qualitative dataset, that examined many different aspects of the larger study, our analysis hence forth was deliberately focused on segments of the data that spoke directly to the objectives of this study.

All text initially coded under "coping strategies" was then examined in greater depth. MT, LJ, NL and LA began by jointly coding a common transcript in detail and discussing the meanings of less familiar phrases used by participants. These discussions were important for ensuring accurate interpretation, particularly as MT had a stronger familiarity with the local context than LJ, NL and LA. For example, the term "posho" was clarified as referring to a locally prepared thick maize meal commonly consumed as a staple carbohydrate for lunch or dinner in Uganda. MT subsequently coded all relevant excerpts and shared the detailed coding framework with the full author team. This process generated 101 open codes illustrating the strategies women and their communities employed to navigate the COVID-19 pandemic. The codes were circulated to all authors for review, and an iterative process of grouping and regrouping was undertaken—both individually (by MT, LJ, and NL) and collectively through discussion—to identify patterns and relationships, thereby moving from codes to themes. After four group meetings involving the authors that led the analysis and some of the other authors, three overarching themes were identified as elaborated in the results section. (Table 1) is an illustration of how open codes were organized into labels/categories, sub-themes, and themes during analysis.

Table 1. An overview of the thematic analysis process from open coding to final themes.

Open codes (Examples)	Labels (Examples)	Sub-themes	Theme
Vending, collecting used plastic bottles, selling used bottles, sweeping roads, washing clothes, husband left, learnt how to bake, operated illegally, befriended/bribed police, hustled, used ambulance to transport food, started to work at a bar, working in hiding, kept my salon open, getting referral customers, eating grass, eating less meals	Being frugal, finding alternative work, circumventing lockdowns, causal labour, started to work, skilling, hustling	Finding new work during lockdown Hustling for survival	Financial and behavioural strategies
Detoothing, sold my body, had sex with multiple men, sold my body to feed my children, contracted HIV, unsafe sex, taken advantage of, sleeping in bars, forced to marry, intergenerational sex.	Unsafe sex, Temporal relationships, taken advantage of.	Transactional sex	Transactional sex
Help from family, helpful friends, gathering to destress, moved children to village, supportive partner, fed by neighbours, employer support, beans and posho from government, getting rotten beans, political leaders provided beans, churches distributed posho, saving group members, pooling resources, joined savings group.	Family support, neighbourliness, friendships, church, employers, political leaders, government, saving groups	Social networks Organizational support	Social networks and organizational support

Researchers´ positionality

All Canada-based researchers were outsiders to the local research context, with the exception of MT, who is Ugandan and had lived in both study cities prior to relocating to Canada in 2021. This positionality introduced a productive duality within the Canada-based team leading the data analysis: it created analytical distance that helped limit unexamined assumptions, while still allowing for contextual insight.

In contrast, the Uganda-based team brought exten-

sive experience conducting research in the country, including direct engagement in informal settlements. This insider perspective enabled a deeper understanding of local power dynamics, for example, informing the age stratification used in the focus groups. In addition, the Uganda-based team provided an important layer of interpretive validation by reviewing and contextualising findings, despite not being directly involved in the data analysis process.

RESULTS

Three inter-related themes illustrate the ways by which women living in informal settlements attempted to meet individual and household needs during restrictions associated with the COVID-19 pandemic. The first theme pertains to the financial and behavioural strategies that women employed in response to poverty and hunger during lockdowns. The second examines women's engagement in transactional sexual relationships as a survival response, with particular attention to the power dynamics and health risks embedded within these exchanges. The third highlights the role of social networks and organizational actors in shaping survival during the pandemic, illustrating how community relationships and institutions functioned both as sources of support and, at times, as contexts that intensified vulnerability.

Financial and behavioural strategies

This theme captures the range of financial and behavioural strategies women employed to confront the economic challenges posed by COVID-19 lockdowns. Two sub-themes emerged: finding new work during lockdowns and "hustling" for survival. Residents of informal settlements had been facing poverty and financial insecurity well before the COVID-19 pandemic. However, when the pandemic measures led to the loss of jobs and increased hunger, women experienced greater livelihood insecurity. Some of the strategies discussed included cutting expenses and learning to save money, rationing food, and changing eating habits or embracing alternative foods in the absence of daily staples.

Because women are often the primary decision-makers regarding food and cooking in the home, these strategies had implications for the entire household. Women reported purchasing only basic items when funds allowed, choosing cheaper foods than the family would normally consume, and preparing fewer and smaller meals for themselves and their children. Women were also burdened with the task of caring for children and sick family members during the pandemic. However, limited work opportunities, financial hardship, and transportation restrictions constrained access to medication and health care. In response, some women turned to home-made remedies to treat COVID-19 and other illnesses.

Finding new work during lockdown

The pressures of caregiving and providing food for the family were heightened for some women during the pandemic due to tensions between women and their male partners. Due to closure of workplaces and schools and travel restrictions, men in the informal settlements lost jobs running businesses, practicing trades, driving taxis or motorcycles, or working in schools. In households where men were the primary breadwinners, this effect was damaging to intrafamilial relationships, and tensions were high – leading to sometimes violent quarreling. Some women reported having been abandoned by their husbands or partners who chose to escape mounting social and family pressures to provide financially. As a result, women were left alone with their children, unable to work owing to the lockdowns and curfews, and struggling to feed themselves and their children.

> "*Families disintegrated and men ran away from their responsibilities. We women remained as the tree to hold the branches (children) that we produced.* (FGD 07)"

> "*My husband came back but he sits at home and looks on. He is not working, so I can't ask him for anything, so I consider myself as a single mother, I take care of my own children.* (FGD 10)"

Under these circumstances, women intensified their efforts to generate income while continuing to manage household responsibilities. Driven by the dire need to care for and feed their families, women turned to informal employment or trading activities, such as vending food and produce, and collecting and selling used plastic bottles to recycling companies, or domestic and janitorial jobs such as sweeping roads and government buildings floors and washing clothes or dishes for other homes and businesses. Some women began working for the first time during the lockdown, while others diversified their livelihoods and took up forms of work that had previously been socially discouraged or associated with lower status.

> "*COVID found me washing clothes for money, but my husband did not like me washing clothes. He would say that this is for beggars. I would do it stealthily; as I now had even more limited options, I go and wash clothes when he is not around, and I would return home before he does. He would ask me whether I had been loitering around the village and I would tell him no, yet I had been washing clothes for people.* (FGD 09)"

Hustling for survival

In searching for work, many women turned to socially unacceptable means to make money or find food, circumventing stringent lockdown measures and engaging in prohibited activities. For example, they operated

and worked in bars, women's salons, and restaurants despite strict and sometimes violent police surveillance of such establishments. In some circumstances, women reported having to bribe police and to hide prohibited activities. Additionally, when restrictions barred transport between cities, women had to negotiate with ambulance drivers or motorcycle riders to secretly carry them or their goods, such as food or supplies for their marketing activities.

> *"I had a bar, and some of my customers gave me some advice, saying "you have children now, if you close the business how will you survive?" So, they took me to the police officer in charge and we talked, so we would give him 40,000 per week so that our businesses could remain operating, so that they do not arrest us, but that was during the first wave of the pandemic. During the second lockdown, it became very difficult, the policemen would disturb us so much. When they arrest you, you must pay money to get out, and you also must pay for the customers they find in your bar.* (FGD 07)"

> *"Our parents in the village, they could not send food because of transport problems. I used an ambulance just to get food, we risked it. If the police could check, we could get arrested. That is how we survived.* (FGD 03)"

> *"I had a house with both a rear and front door and I used to tell my customers to come in from behind and tell them not to shout. During that time, not even cats shouted.* (FGD 13)"

Women who were unable to find paid work described resorting to extreme measures to survive, including picking food from garbage bins, consuming unsafe water, cooking grass for sustenance, foregoing meals, begging, and selling personal property. These experiences were emotionally distressing and contributed to deteriorating mental well-being. In some cases, the pressures associated with hunger, financial insecurity, and psychological distress also increased vulnerability to behaviours that carried additional health risks, including alcohol use, unprotected sex, and transactional sexual relationships as further illustrated in the transactional sex theme below.

Transactional sex

While some women described transactional sexual relationships as part of broader survival strategies during the pandemic, their accounts also highlighted distinct dynamics related to power, negotiation, and health risks within these exchanges. Women described engaging in transactional sexual activity to meet immediate basic needs, often as a temporary measure driven by desperation in the prolonged absence of income.

> *"There were some women who were not working; the spouse also has nothing to offer; the children are crying, so as she is moving, she finds another man. He gives her 5000 shillings (USD 1.4), and then the next time he calls her, and she ends up going with him.* (FGD 22)"

> *"You could not look on as your child is dying of hunger, so we resorted to detoothing (conning men out of money). You find your girl child with a man so old they are suited to be dating you, the mother. Sometimes with a man you have even dated before, and now they are wooing your child. You both know you are sick (HIV), and he goes to your child, and you feel very bad at heart.* (FGD 03)"

Women emphasized that such relationships were often characterized by unequal power dynamics, which limited their ability to negotiate safer sexual practices. Men who controlled financial resources could refuse condom use or seek other partners, leaving women with little bargaining power despite the risks involved. Participants described the resulting vulnerability to HIV infection and unintended pregnancies.

> *"Because of COVID, I did a job that I did not expect to do, and yet it was the riskiest. Those who would come with a lot of money did not want to use protection. He will tell you, "I have 50,000 shillings (USD 13.5) but I don't want protection," so you accept.* (FGD 08)"

> *"Me, I will never forget the moment I lost my job, and I did not have food, so in order to survive I got a man who impregnated me and then he ran away. Up to now, I don't know where he is.* (FGD 08)"

Conversely, some women sought, or were pressured to enter, longer-term relationships as a strategy for financial security. For example, some women married during the pandemic as an explicit survival strategy, while others entered extra-marital or polygamous arrangements. However, these relationships did not necessarily resolve financial insecurity, and some women continued to experience abandonment and economic hardship within them.

> *"I decided to get married to a man who cooks chapati because then there is food.* (FGD 23)"

Social networks and organizational support

Two general kinds of social or community-level support were discussed: social networks and organizational support. Social networks included personal relations such as friends, immediate and extended family, neighbors, and community members. Organizational support came through formal entities such as women's savings groups, political leaders, employers, NGOs, churches, and government institutions. These provided spaces for not only networking but also material and psychological support.

Social networks

Women recounted turning to family members, friends, neighbours, and church groups to socialize and counsel one another. Being in the company of others was crucial for some women who found strength and stress relief through conversation, games, and communal gatherings. As a result of relying on such social supports and sharing the experience of difficulty during the pandemic, some women experienced a strengthening of friendship and family relationships.

These social networks were also a source of practical support. Sharing of food rations or helping with childcare were common, as was finding opportunities for work through social connections. While friends, neighbours, and church communities were often mentioned as helpful, immediate, and extended family members were the most identified source of social support. Residents of both Kampala and Mbale described receiving money and food from family members during times of desperation and hunger.

> "*I had a neighbor whose situation was not as bad as mine because she used to help me. She was there for me, took care of my child.* (FGD 03)"

> "*In the village, my family would try and find means to send me cassava and bananas. When the bananas would ripen, I would sell them, and the little money I would get was what I would use to buy posho.* (FGD 08)"

Other women sent their children to rural areas to stay with relatives to reduce the economic burden on households in the city. As with other survival strategies, this often-involved circumventing travel restrictions during lockdowns.

> "*When COVID came, I couldn't afford rent, so I first sent the children to the village, and I remained with my husband. I could go to town and hustle whatever little I would get.* (FGD 24)"

Psychosocial support was especially important during these periods of severe mental distress. Some women spoke of finding reprieve from feelings of hopelessness or thoughts of suicide through friends' counsel, or of providing the same support to others in similar situations. However, for those who experienced such mental health crises and hopelessness, finding company in friends or family was not a panacea.

> "*My marriage had come to an end; my family was broken, and I was by myself with two children. I was stranded and hopeless and said to myself, "let me just die." My mother found me and talked me out of it.* (FGD 24)"

However, social networks could also expose women to environments that increased vulnerability to risky behaviours. In particular, alcohol and drug use was both a popular social activity and individual coping mechanism to manage the stress of lockdowns. Alcohol was also consumed by some as a home remedy for illnesses and protection against COVID-19, which increased risk of alcohol abuse. While for some, substance use was a new activity, for others, the lockdown restrictions increased existing use. The intertwining challenges of substance use, and mental health issues heightened vulnerability to HIV created by a lack of basic needs, especially for younger women.

> "*Me I used alcohol; I don't know if I became a drunkard. I would be in the bar 24/7, even the company I kept was using drugs and toxic weeds and they influenced me to use them.* (FGD 11)"

> "*I was a drunkard, and my friends were also drunkards. We would drink, and the men would take us to their rooms.* (FGD 13)"

> "*They told us that when you take alcohol, you don't get COVID, so I started taking waragi (local gin) so that I don't die. It helped me manage stress because you would fall asleep and wake up when the stress has decreased.* (FGD 20)"

Organizational support

Some families in Kampala and Mbale received assistance from formal organizations such as government, churches, and non-governmental organizations, mostly in the form of food relief distributions. Churches donated and distributed cornmeal (posho) and beans to supplement the Ugandan government's relief efforts. In some cases, churches also provided financial assistance for some community members requiring aid. Other non-religious, non-governmental organizations were also present in some communities providing food, monetary aid, mental health support, or health services, though this type of assistance was not commonly available to our focus group participants.

> "*There was a church near us that would give us posho and some money. The landlord would also buy beans for us. The church people really helped with that.* (FGD 10)"

Similarly, political leaders and some employers supported women during the lockdown periods to overcome some of the challenges they were faced with including providing basics such as food. Political leaders also mediated between landlords and tenants to provide longer grace periods for payment of rent in arrears. In some cases, support came from employers providing short term assistance to their employees.

> "*One morning the landlord removed the roof of the house as we had been unable to pay the rent. I cried that day and ran to my sister. The chairperson talked to the landlord, and the house was roofed again by God's grace.* (FGD 01)"

> "*After some time, an MP came and gave us maize flour and I took it home.* (FGD 03)"

However, this organized support was insufficient and, in some cases, lacking in terms of quality of food or basics provided to households. For example, some women reported that the beans and posho (corn meal) they received from the government were of poor quality and made their situation only worse. This was illustrated in situations where the poor-quality (rotten) beans needed more scarce and costly cooking fuel to prepare a basic meal.

> *"The food that government gave us, it was maize brand and the beans were rotten. We almost died of hunger and yet we had children.* (FGD 01)"

Some women also organized themselves into informal savings groups. The groups acted as an avenue for socializing and relieving stress as well as a means of financial saving by which women pooled resources to meet immediate basic needs. These savings groups were both formal and informal. While some organized themselves into formalized Savings and Credit Cooperative Organizations (require legal registration and are often considered more secure by its members given the formal recognition and clear pathways for resolving conflicts that may arise), others pooled resources with friends and neighbours to meet basic needs.

DISCUSSION

This study portrays the challenges faced by women in urban informal settlements in Uganda during COVID-19 lockdown and illustrates the consequent risks to health and well-being. Although many of the challenges resulted in serious livelihood insecurity and related challenges to health, it is also clear from our participants that they were often able to call on personal and social resources to manage difficult situations. As such, the results of the study reflect broader discourses on women's strength in navigating economic hardships and societal expectations, particularly as traditional gender roles collide with the realities of a global crisis increasing the burden of their care work [38, 39]. Despite significant adversity, women engaged in trading activities, entered the workforce, and embraced new roles to support themselves and their families, albeit in the informal sector in which job precarity, unequal pay, and poor working conditions often reinforce the cycle of poverty among women and expose them to serious health risks and gender-based violence [40, 41]. The portrayal of women's lived experiences of the COVID-era public health interventions in this study adds depth to discussions on gender inequality, emphasizing the importance of understanding how gender shapes women's experiences during times of crisis. These findings also reflect a broader global pattern observed during the COVID-19 pandemic, where lockdown measures disproportionately affected women, particularly those working in informal economies and living in low-income or marginalized urban communities [21, 42, 43].

The experiences of the women in our study reveal the emotional and physical toll of extreme survival measures, linking their vulnerabilities to mental health crises and behaviors that place their health at greater risk. These findings are consistent with studies from other low- and middle-income countries, particularly in informal settlements, that report the disproportionate impacts of the pandemic among women in relation to food insecurity, household violence, and access to sexual and reproductive health services [32, 38, 39]. In our context, we found that many women experienced abandonment by men (partners), which increased the burden of work and compounded the toll of economic hardships on women's mental and physical well-being. This dual burden of work intensified their dependency on unreliable sources of income such as transactional relationships, thus, reinforcing their vulnerability to negative health outcomes.

Some women, grappling with severe financial difficulties and food insecurity, turned to short-term sexual survival strategies [25, 44]. Several studies have highlighted the complex and intersectional relationship between socioeconomic status and sexual health outcomes, including HIV and unwanted pregnancies, within informal settlements in Uganda and other sub-Saharan African countries [25, 44-46]. However, our findings demonstrate how lockdown measures intensified these dynamics by narrowing women's options, transforming what may have been episodic coping strategy into urgent survival responses. Therefore, women's choices began to reflect less as a strategic choice but a constrained response to structural pressures. Engagement in socially and personally undesirable activities such as transactional sex and longer-term relationships for economic support illuminates the compromises impoverished women must make, even as it places them at heightened risk of HIV infection. Our findings are in line with other studies that have found that the heightened stress of poverty during the pandemic, combined with a decline in access to essential health services and medicines, likely increased the risk of HIV infection or worsened the health of those already affected [47]. This combination of factors has significant consequences for a population with a large burden of HIV and higher rates among women [48]. Similarly, the current study underscores the vulnerability of women in such transactional relationships, shedding light on unequal power dynamics and compromised ability to negotiate safer sex practices [25, 45, 49]. This finding is consistent with literature on gender-based violence that indicates that exploitation within intimate relationships further undermines women's ability to remain healthy in adverse conditions [50-52].

COVID-19 restrictions placed households at significant financial and psychological risk, compromising quality of life in low-income households. These conditions exacerbated conflicts and gendered power imbalances within relationships and families, contributing to

increased gender-based violence. Studies have shown that the rate of intimate partner violence increased during the COVID-19 pandemic, both in Uganda and other contexts, due to a myriad of factors such as stress from job loss, social isolation, increased time with partners during the lockdown, and broader social and economic instability [23, 24]. In our study, women described how economic precarity destabilized traditional provider roles and intensified struggles over household control. When men lost income, violence operated not only as an expression of stress but as a response to reassert masculinity and authority within relationships shaped by shifting economic power. Lockdown measures further reduced women's bargaining power within relationships due to constrained escape options, thereby compromising women's decision-making autonomy and reinforcing unequal gender hierarchies within households.

Women's home lives were made more precarious by the threat of family abandonment. The loss of the primary breadwinner can have a devastating effect on households. Freitas et al. reported similar scenarios during the 2015 Zika outbreak in Brazil;[53] mothers whose children were infected by the Zika virus experienced social and gender inequality and poverty, marital infidelity, violence, and abandonment [53]. In our study, COVID-19 restrictions compounded these dynamics by simultaneously disrupting income opportunities and limiting access to reproductive health clinics. As sole providers under constrained economic decisions, women turned to transactional sex to care for their families. However, increased economic dependency within these relationships meant reducing their power to insist on contraception or safer sex. The resulting unintended pregnancies and the ensuing challenges that women experienced in our study context align with broader discussions in the literature concerning reproductive autonomy and the societal implications of limited access to family planning resources, especially in informal settlements [49, 54]. In this way, family abandonment acted not merely as family separation but as a structural amplifier of gendered poverty, reducing autonomy, and increasing vulnerability during the crises.

The study emphasises the multifaceted challenges faced by women in informal settlements in Uganda during the COVID-19 pandemic. Economic precarity was a central theme, resonating with existing literature on urban poverty in informal settlements [55]. Our findings illustrate how this precarity was intensified by the pandemic restrictions particularly for women working in informal sectors. Consistent with broader discussions on the vulnerability of women across low-and-middle-income countries [12], participants described sudden income loss and limited alternative livelihood options. Such vulnerabilities are only made worse in pandemic situations in which women are required to bear the burden of increased child and general household care [56], thereby exposing them to worsening mental health conditions and susceptibility to unsafe means of survival [25, 39, 44, 57].

Ogando, Rogan and Moussie [21] describe how, in some low- and middle-income countries, women's share of the care work can be as much as 75 to 90% higher than men's and that the COVID-19 crisis has intensified this inequality. Our findings reflect and extend this pattern. Women's vulnerability during the pandemic has increased their vulnerability to the worsening of the gender burden [20]. Thus, the pandemic did not simply expose pre-existing gender inequalities, it deepened them. As women lost income-earning opportunities, power relations within households shifted, reducing their control while simultaneously increasing their workload. Although some women in our study were able to establish new forms of income generation, these efforts occurred alongside expanded care demands. School closures increased childcare responsibilities, heightened hygiene and sanitation expectations, and growing community obligations significantly increased women's unpaid labour. As a result, women were placed at greater risk of gender-based violence and family abandonment, demonstrating how economic and care inequalities translated into broader vulnerabilities during the pandemic.

Conversely, in the face of such hardships, the significance of social connections and psychosocial support networks emerges as a crucial aspect of women's strategies of survival. Participants described relying on neighbours, churches, family members, friends, and informal savings groups for both emotional reassurance and financial support. This finding aligns with literature emphasizing the importance of community ties for mental well-being in informal settlements [58, 59], and with research highlighting the relationship between social connectedness and mental health among Ugandan women during times of crisis [60]. Social networks and capital play a crucial part in sustaining women especially in situations of adversity and underdeveloped mental health services [61]. Indeed, our findings show that support flowed across urban and rural spaces, as women sent children to villages, received food from relatives, and navigated lockdown restrictions to sustain family connections. In doing so, women actively reorganized care and livelihood strategies beyond formal state structures. Yet these networks were not uniformly protective. While they provided critical relief and solidarity, they could not fully buffer prolonged economic hardship or mental distress. Institutional assistance, whether from government, churches, or political leaders, offered temporary relief but was often inconsistent, insufficient, or poorly aligned with local needs. Additionally, the role of institutions in providing relief mirrors research on the complexities of assistance programs in informal settlements [62]. While institutional support was present, our study underscored the limitations and challenges of such aid efforts, highlighting the importance of tailoring aid to the needs of the population [63, 64]. Interestingly, our findings highlight the dual and often contradictory role of state institutions, particularly the police. While police

acted as law enforcers to ensure adherence to COVID-19 lockdown measures, they also, at times, exercised discretion by bending rules to allow women to continue earning a livelihood. However, this flexibility was not neutral, as it was often accompanied by the extraction of bribes. This leads to a complex and ambivalent relationship, where enforcement, accommodation, and exploitation coexisted. As a result, women remained heavily dependent on collective self-organization. Therefore, these findings suggest that community networks functioned both as resilience mechanisms and as indicators of structural gaps in social protection systems. Broader structural change is needed to provide social welfare support for these communities beyond the pandemic context [21]. Strengthening future crisis preparedness therefore requires not replacing informal networks but reinforcing them through sustained social welfare reforms beyond the pandemic context.

Plans to address future challenges akin to the COVID-19 pandemic must recognize the precarity of those living hand-to-mouth. Interventions must be inclusive, tailored, and responsive to the needs of marginalized communities. Women, who lose decision-making power and whose voices and priorities are ignored during times of adversity, need to be included in the formulation of these plans and interventions to ensure that they do not suffer a repeat situation of their experiences during COVID-19 in which their physical and mental health was compromised [65].

Finally, the study's findings point to several ways to address the challenges faced by women in Uganda's informal settlements during crises. Initiatives focusing on economic empowerment, such as skills training and entrepreneurship programs, can alleviate the economic vulnerability of women engaged in precarious work. Strengthening access to reproductive health services and implementing community-based health programs are crucial to addressing unintended pregnancies and heightened vulnerability to HIV infection resulting from transactional sex. Securing access to education for lower-income girls can create a protective shield against teenage pregnancies and increase chances for a better livelihood. Psychosocial support services tailored to the unique needs of women in informal settlements, along with community building and social networks, can provide essential emotional and mutual support. These findings suggest that pandemic preparedness strategies must integrate gender responsive social protection measures, including cash transfers, food security programs, and continued access to sexual and reproductive health services during crises. Advocating for policy changes, refining institutional aid strategies, and promoting further research on women's experiences during crises are integral components of a comprehensive approach to improving the well-being of these women. It is important to ensure that these changes are grounded in local realities by approaching them through collaborative co-design approaches that center and reflect community needs and aspirations. By implementing these recommendations, stakeholders can foster resilience and mitigate the multifaceted challenges faced by women not only in Uganda's informal settlements but also in similar settings in other low- and middle-income countries.

Study limitations

A limitation of this study relates to the use of focus group discussions, where some participants may have dominated the conversations, potentially influencing the breadth of perspectives shared and limiting the participation of quieter members and limiting the depth of discussion as it related to more sensitive issues such as transactional sex. Additionally, although participants were recruited from two cities and across different age groups, the study design prioritized capturing collective experiences rather than conducting systematic comparisons. As a result, data collection and analysis placed limited emphasis on examining differences across cities or across diverse socioeconomic characteristics, which may have constrained deeper comparative insights. Future research could complement focus group discussions with in-depth individual interviews to allow for more private exploration of sensitive issues, such as transactional sex. Further studies could also incorporate more deliberate comparative data collection and analysis across cities and key sociodemographic characteristics to better understand variation in women's experiences.

Conclusion

The study identified significant socioeconomic and health challenges faced by women in Uganda's informal settlements amid the COVID-19 pandemic. It underscores the intricate interplay between economic struggles, strength, and vulnerability, contributing to the literature on gender roles during public health crises. Despite economic hardships, women displayed resourcefulness in trading activities and adapting to new roles. However, the findings also highlight transactional sex as a survival strategy adopted during severe economic pressure. This strategy exposes unequal power dynamics and contributes to unintended pregnancies, gender-based violence, and vulnerability to HIV infection. Additionally, transactional sex emphasizes urban poverty and the exacerbated hardships faced by women engaged in precarious work within informal sectors. The significance of social connections and psychosocial support networks also emerged as crucial for women's survival, highlighting the importance of community ties for mental well-being. While institutional support was present, the study underscores its limitations in adequately addressing the needs of women in informal settlements. Overall, the research deepens our understanding of the multifaceted experiences of women in Uganda's informal settlements during the pandemic, encompassing economic challenges, resilience, and the dynamics of community and institutional aid.

Future research should more comprehensively examine women's responses to public health crises by explor-

ing the intersections between substance use and mental health, incorporating comparative analyses across key sociodemographic characteristics (e.g., age, socioeconomic status, household composition), and investigating the roles of formal and informal support systems. In particular, greater attention should be given to informal collective mechanisms—such as women's savings groups—and how these operate alongside, or in the absence of, formal structures. Such work would generate more nuanced insights into differential vulnerabilities, coping strategies, and the ways women mobilize resources and social networks, ultimately informing more effective community-based and institutional responses.

DECLARATIONS

AI utilization

The authors declare no AI utilization in the execution of the study and drafting of the manuscript.

Competing interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Author contributions

MT led the conceptualization and drafting of the manuscript. MT, ML, LA and LJ led the data analysis process, all the other authors iteratively reviewed the coding process and contributed to the overall framing of the findings. SB provided oversight to the data collection process while Kawooya led the data collection. CRJ and SB provided the overall technical guidance to the conceptualization and framing of the manuscript. All authors reviewed drafts of the manuscript, were involved in the iterative data analysis process, provided substantial input, and agreed to the contents of the submitted manuscripts. Authors also approved the submitted version of the manuscript. And have agreed both to be personally accountable for the author's own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

Data availability

The qualitative transcripts used during the current study are available from the corresponding author on reasonable request.

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ABSTRACT IN SPANISH

El impacto de las restricciones por COVID-19 en la salud y el bienestar de las mujeres que viven en asentamientos informales en Uganda

Introducción: La pandemia de COVID-19 impactó significativamente a Uganda, con el primer caso reportado en marzo de 2020, lo que dio lugar a amplias restricciones de salud pública, incluyendo confinamiento, toque de queda y cierre de escuelas y lugares de trabajo. Los residentes urbanos, particularmente aquellos que viven en condiciones de pobreza en asentamientos informales, enfrentaron mayores desafíos debido al acceso inadecuado a servicios básicos, dificultades económicas y el aumento de las responsabilidades de cuidado, especialmente para las mujeres. Estas sufrieron un mayor riesgo de violencia de género y recurrieron al sexo transaccional como mecanismo de afrontamiento. Este estudio exploró las estrategias utilizadas por mujeres en las ciudades de Kampala y Mbale para satisfacer sus necesidades básicas durante la pandemia y sus implicaciones en la vulnerabilidad a la infección por VIH.

Métodos: Los investigadores realizaron grupos focales con 209 mujeres de diferentes grupos de edad en los mayores asentamientos informales de Kampala y Mbale, recopilando información sobre sus experiencias durante la pandemia. Estas discusiones, llevadas a cabo en lenguas locales, exploraron los desafíos sociales, familiares y económicos de las mujeres, así como sus percepciones sobre los riesgos de VIH. Las transcripciones fueron traducidas por expertos en lenguas locales antes del análisis. El equipo analizó los datos utilizando el software NVivo versión 14, identificando patrones y temas que revelaron las estrategias de supervivencia empleadas por las mujeres.

Resultados: El estudio identificó tres temas interconectados que reflejan las complejas estrategias y desafíos enfrentados por las mujeres en asentamientos informales de Kampala y Mbale durante la pandemia de COVID-19. Las mujeres tuvieron dificultades para hacer frente a las carencias económicas y al aumento de las responsabilidades de cuidado, recurriendo a menudo a medidas como el sexo transaccional para sobrevivir. La pandemia exacerbó las vulnerabilidades, incrementando los riesgos de transmisión del VIH y los problemas de salud mental. Aunque las redes de apoyo brindaron cierto alivio, a menudo fueron insuficientes para satisfacer las diversas necesidades de las mujeres en estas comunidades.

Conclusiones: El estudio muestra que las mujeres en los asentamientos informales de Uganda demostraron resiliencia al asumir nuevos roles y participar en actividades comerciales; sin embargo, su dependencia del sexo transaccional evidenció desequilibrios de poder, aumentando su vulnerabilidad a la violencia de género, los embarazos no deseados y la infección por VIH. Esto resalta la necesidad urgente de intervenciones específicas que aborden los complejos desafíos que enfrentan las mujeres en situaciones de crisis, lo que podría fortalecer su resiliencia y aliviar sus múltiples dificultades, aportando lecciones valiosas para contextos similares en países de ingresos bajos y medios.

Palabras clave: Supervivencia, COVID-19, VIH, vulnerabilidad, asentamientos informales, mujeres, Uganda

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