

Article

The impact of Covid-19 on food aid systems in South Africa: a cross-sectional mixed-methods study

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Abstract

Covid-19 and South Africa's response to Covid-19 resulted in increased food insecurity and reliance on food aid. This study aimed to describe the functioning of the food aid system during South Africa's Covid-19 response. We conducted a mixed-methods study from August 2020 to January 2021 in South Africa. Data collection comprised of a desk-based review of private actor activities related to food aid during Covid-19; key informant interviews with food aid providers in both civil society and government, informal traders, and academia ($n = 20$); and a survey with HIV-positive women ($n = 202$). Interviews were transcribed and inductively coded. Data were analysed qualitatively using thematic analysis. Results showed that Covid-19, and the response, caused disruptions to food supply, specifically informal food economy and reduced incomes, resulting in increased reliance on food aid. While food donations increased, this did not meet increased demand for aid. Recipients of food aid reported low access to food aid and a mismatch between the contents of food aid parcels and their needs, despite aid providers outlining policies that considered nutritional and cultural acceptability of food parcels. Many participants indicated a preference for a food voucher or grant over food parcels. The paper highlights the unintended adverse consequences of the Covid-19 response on food insecurity. South Africa's food aid system was insufficient to respond to the needs of vulnerable groups during the pandemic. We recommend ongoing monitoring of interventions to identify and mitigate unintended consequences and the implementation of a food voucher system.

Keywords: food vouchers; food insecurity; food parcels; pandemic response

Contribution to Health Promotion

- Food insecurity is a key determinant of health and, if coinciding with epidemics of communicable diseases creates a syndemic of public health concern.
- The Covid-19 pandemic and response resulted in increased levels of food insecurity which was addressed in South Africa (and elsewhere) through expanded food aid programmes.
- This study investigates the role of food aid in addressing food insecurity and, through multiple stakeholder perspectives, what the challenges and barriers to improving food security were during Covid-19.

INTRODUCTION

Food and nutrition insecurity are a key determinant of health (Hawkins and Panzera 2021). In countries, such as South Africa (SA), high burdens of HIV and tuberculosis intersect with food insecurity to create a serious public health issue that must be addressed (Himmelgreen et al. 2009). The 2020 Covid-19 pandemic and responses through lockdown had a significant effect on levels of food insecurity globally. Studies conducted in high-income countries showed increased levels

of food insecurity, with lower socio-economic status (SES) populations being disproportionately affected (Kent et al. 2020, Rachel 2020, Wolfson and Leung 2020). Countries with high existing levels of food insecurity, Mexico and Brazil saw increases in food insecurity during and after the pandemic, particularly in vulnerable populations (Mishra and Rampal 2020, Gaitán-Rossi et al. 2021, Manfrinato et al. 2021).

SA also experienced increased rates of food insecurity during the pandemic. Prior to the pandemic, 20% of SA households

were estimated to have inadequate or severely inadequate access to food with higher numbers of women compared with men going hungry (Stats SA 2019). The Coronavirus Rapid Mobile Survey (CRAMS) highlighted the pandemic's impact on food insecurity with 47% of respondents having insufficient funds to purchase food and 21% of respondents reporting that a member of their household had gone hungry in the preceding week (van der Berg, Patel and Bridgman 2021). Additionally, the Covid-19 pandemic SA's converging epidemics of obesity and non-communicable diseases, and HIV/AIDS and tuberculosis (TB) meant that many individuals were at an increased risk of developing severe Covid-19 (Jassat *et al.* 2021). In this context, increased food insecurity also has profound effects for the 7.7 million people living with HIV in SA. The effectiveness of antiretroviral treatment (ARV) may be compromised by inadequate nutrition (Singer *et al.* 2015).

Addressing food insecurity is a complex challenge, and this complexity is heightened in a public health emergency where there is a need to simultaneously address the infectious disease threat, such as Covid-19, and existing challenges such as food insecurity (Gundersen *et al.* 2021, Venning 2021). South Africa's Covid-19 response included a national lockdown implemented in March 2020 with the closure of large sections of the formal and informal economy, causing major disruptions to the food system (Battersby 2020, Wegerif 2020, Mlambo and Khuzwayo, 2021). This affected the breadth of food supply chains and trading (Battersby 2020, Nyamwanza *et al.* 2020, Skinner and Watson 2020). For example, the closure of schools led to the suspension of one of the largest food provision schemes, the National School Nutrition Programme, which provided daily meals to 9 million children (Independent Online 2021). During the initial lockdown, only formal grocery outlets were permitted to operate, resulting in the prohibition on operations of informal food vendors, a primary food source for the urban poor in SA (Investec 2020, Stats SA 2020, Wandile and Tinashe 2020).

The increase in food insecurity reflected in CRAMS was an unanticipated and undesirable consequence of both the pandemic and SA's response (van der Berg, Patel and Bridgman 2021). In many instances, pre-existing vulnerabilities and food insecurity were exacerbated by factors including disruptions to food systems and job and income losses (Firoz *et al.* 2020, Kent *et al.* 2020, Kinsey, Kinsey and Rundle 2020, Mishra and Rampal 2020). Anticipating increased food insecurity, some stakeholders suggested the adoption of increased social protection policies and intensified support of lower SES groups (Firoz *et al.* 2020, Mishra and Rampal 2020).

Government and NGOs responded to the increase in food insecurity through the expansion of food aid programmes, including food parcels, in-kind donations, and expanded social assistance programmes (Mlambo and Khuzwayo 2021, López Peláez, Erro-Garcés and Pérez-García 2022). In 2020, there were temporary expansions to SA's system of social grants, including an increase to the child-support grants and expanded access to the Unemployment Insurance Fund to support workers who were temporarily laid off (Mlambo and Khuzwayo 2021; López Peláez, Erro-Garcés and Pérez-García 2022). The government also introduced the Covid-19 relief grant of ZAR 350 (USD 23.7) per month to assist people not covered by other grants (Arndt *et al.* 2020; Mlambo and Khuzwayo 2021). In addition, NGOs and government, sometimes in partnership, swiftly executed food distribution projects. In the Western Cape, NGOs especially supplied food for the first

18 months of the pandemic, and it is estimated that they were responsible for at least half of the food assistance for the first few months of the pandemic (Adelle & Haywood, 2021).

Interventions to improve food insecurity during Covid-19 were important and had differing levels of success (Arndt *et al.* 2020, Venning 2021, López Peláez, Erro-Garcés and Pérez-García 2022). Yet, there is a need to understand how the Covid-19 response impacted the food system as well as the accessibility, acceptability, appropriateness of measures taken to address food insecurity from the perspective of multiple actors, including the informal sector and, importantly, the private sector as a key influence on food aid. A multi-sectoral examination of the drivers and pitfalls of South Africa's response to addressing food insecurity during the Covid-19 period can offer lessons learned to inform future policy in the country especially for vulnerable populations, during times of crisis and otherwise. Recognizing that policy and regulatory responses to Covid-19 had a significant impact on the food system, this study aimed to describe the disruption these responses created in the food system to inform and improve future responses.

This research aimed to document how the Covid-19 pandemic and initial responses affected the food aid system in SA. The study addresses the problem by first reviewing relevant information, followed by exploring the perspectives of multiple stakeholders. It examines the factors influencing the composition, distribution, and availability of food aid from the viewpoints of government entities and food aid providers. Additionally, it analyses the acceptability, accessibility, and availability of food aid from the perspective of HIV-positive women as recipients.

MATERIALS AND METHODS

Study design

A cross-sectional mixed-methods study (Creswell and Clark 2017) documented the period between March and November 2020 in SA, a period that included all lockdown levels (Levels 1–5). The study comprised of three separate streams of data collection namely (i) a desk-based review of private actor activities related to food aid (DBR), (ii) key informant interviews with stakeholders involved in the food system, specifically related to food aid (KIIs), and (iii) a survey among women living with HIV (WLWH survey). During protocol development and undertaking of the research, the study team adopted a gender-sensitive lens that sought to ensure gender diversity as far as possible when selecting participants, except for the WLWH Survey, which consisted of only women. Table 1 below provides an overview of the study methods.

Study setting and sample

The DBR was restricted to private actors operating in South Africa to identify stakeholders for KIIs and to map corporate political activities related to food insecurity, following the INFORMAS methodology (Mialon *et al.* 2015). Additional stakeholders were identified through a literature review on food insecurity research. While private actors were invited to participate in the KIIs, members of the food industry declined. Consequently, the DBR was utilized to incorporate the activities of these private actors.

The KIIs included informal traders and individuals involved in the provision of food aid in SA. A purposive sample of 20 key stakeholders was identified through the DBR and

Table 1. Overview of study methods

	DBR	KIIs	WLWH survey
Brief description	A desk-based review of private actors engaged in philanthropy or activities related to food aid during the COVID-19 pandemic.	Key informant interviews with stakeholders involved in the SA food system to understand the impact COVID-19 had on the food system, specifically in relation to food aid.	Survey and open-ended questions to assess impacts of welfare and food insecurity of COVID-19 and relief measures on the households of WLWH.
Study setting	SA	SA	Gauteng province
Study sample	Not applicable	Key stakeholders in the food system	Women living with HIV (18 years and older) participating in the ADVANCE clinical trial
Data collection methods and tools	Pre-determined data extraction template populated through desk-based review of online sources	Semi-structured interview guide for KIIs	Telephonic survey captured on REDCap
Type of data collected	Documentary	Qualitative data	Mixed quantitative and qualitative data
Data analysis	Framework analysis	Qualitative thematic analysis	Qualitative thematic analysis and descriptive statistical analysis

consequential snowballing technique and included informal traders ($n = 8$), civil society and aid/non-governmental organizations (NGOs) ($n = 6$), academia ($n = 4$), as well as government/parastatal organizations ($n = 2$).

The WLWH survey included women living with HIV (aged 18 years and older) living in the inner city of Johannesburg. Participants were members of the ADVANCE clinical trial (ethics protocol number: 160606B) that is an open-label, non-inferiority, 96-week, Phase 3 Trial comparing three first-line regimens in patients with HIV type 1 (HIV-1) infection starting treatments (Venter et al. 2017). Convenience sampling was used to recruit survey participants. Participants in the ADVANCE trial were approached during their prescheduled trial visits and invited to take part in the survey. For those interested, the survey was administered either immediately before or after their study visit. Between September and October 2020, a total of 202 WLWH completed the survey.

Data collection

A DBR of social media, online editorial, and private actor websites was chosen to systematically identify and analyse private actors' activity—including food aid providers and informal traders—related to food security, food donations, and food parcels during the pandemic (March–August 2020). Actors for KIIs were identified using data from the DBR reporting on food system, particularly food aid activities. The desk-based review also included mapping the policy and regulatory responses to the Covid-19 pandemic which implicated the food system.

An experienced researcher conducted the KIIs utilizing semi-structured interview guides. The guide included 14 open-ended questions regarding the participants' role (if any) in providing food aid prior to Covid-19, what influenced the composition of their food aid, who supported their activities, and which communities they served. There were also questions relating to the impact of Covid-19 on these issues. Interviews were conducted between October and November 2020 using online or telephonic platforms at a time and on a date most suitable for the interviewees. The interviews were conducted in English and took ~45 minutes. The interviews

were transcribed verbatim by the researcher who conducted the interviews. The interview transcripts were de-identified through removing participant names, roles, and any other identifying information provided in the responses. Given the rapid nature of the study, the interviews took place over a period of 2 months. Interviews were conducted until data saturation was reached or, in the case of government officials, with the number of participants *Feasible in the time period*.

The WLWH survey was developed to assess the impacts of welfare and food insecurity of Covid-19 on the households of WLWH. The survey asked questions on self-reported impacts of Covid-19 on how participants accessed food; their main sources of food; whether they have received food aid; their perceptions of and recommended for changes to food aid; whether food aid has impacted food insecurity. Participants were asked about their experiences 'pre-lockdown' (January–March 2020), 'during lockdown' (April–September 2020), and 'during the past 7 days' which at the time of the data collection referred to October and November 2020 and covered the time posthard lockdown (postlockdown), when the country was on alert level 1 from 21 September to 28 December 2020, which indicated a low Covid-19 spread with a high health system readiness (South African Government 2020).

The survey data were captured using REDCap (Research Electronic Data Capture) (REDCap 2022). Each survey took ~20 minutes, was audio recorded, and open-ended questions were transcribed, and translated verbatim (into English, as needed). Survey participants received a ZAR 50 (USD 3.31) reimbursement for their time. The data collected was reviewed on an ongoing basis to identify issues with data quality. An initial challenge was the limited amount of data on participants' experiences and perceptions of the food aid due to the questionnaire's focus on food parcel recipients, while a high number of respondents had not received food parcels. The tool was modified, to ask all questions to all participants (recipients and non-recipients of food aid). We implemented the modified tool through follow-up with the initial participants.

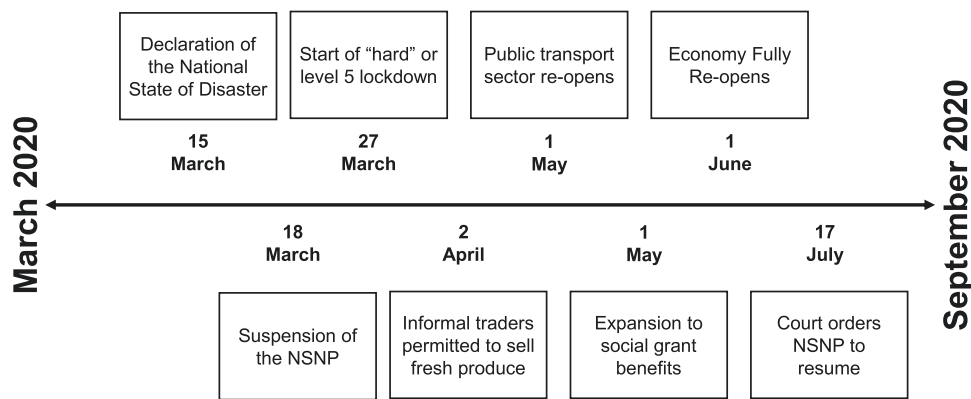


Figure 1. Timeline of COVID-19 response from March to September 2020.

Data analysis

For the DBR, data were extracted and analysed to build a timeline of events impacting the food environment during March–August 2020.

Qualitative data analysis comprising of thematic analysis for both the open-ended questions from the WLWH survey and the interview data from KIIs. Three researchers read transcripts of WLWH and KIIs and then a codebook was developed deductively, informed by the data collection tools, research objectives, and inductively informed by the themes emerging from the transcripts. The research team agreed upon the final codes, and definitions for each code were developed. The three researchers then coded the transcripts of the WLWH survey, with 15% of the survey responses and 20% of the KIIs being double-coded to establish inter-coder agreement. The responses were coded in batches of 5% and any disagreement was discussed until there was 90% agreement in the coding. Data management and coding was completed using MAXQDA software (version 2020). For government officials where there were only two participants, we compared the participants' answers, which aligned with each other and cross-referenced the data from the government officials with data on government responses from other participants to further validate the themes and findings.

For quantitative data obtained from the WLWH survey, we used descriptive statistics to analyse the categorical and numerical variables of the survey (Guillerm 2017). However, due to the small sample size, the results reported in this study are primarily based on the data collected from the open-ended questions.

Following preliminary analysis of the three data sources, the study team shared findings from each stream and collectively analysed the data across streams to iteratively identify linkages and broader themes to build a network map of the findings. Data were triangulated into themes, with findings from the WLWH survey and KIIs being compared with cross-validate insights obtained through different data collection methods. Open-ended survey responses were analysed alongside interview transcripts to ensure alignment and detect any inconsistencies. The DBR was also used to cross-validate participant accounts of the response and policy measures.

Ethics approval: Ethical approval for this study was provided by the Human Research Ethics Committee (Medi-

cal) of the University of the Witwatersrand (protocol code M200847, approved 13 October 2020). All participants in the study were given information sheets about the study and their participation was contingent on providing informed consent.

RESULTS

We provide a brief overview of the Covid-19 response in relation to the food system, and report on characteristics of study participants before describing the key findings from the study.

Timeline of the Covid-19 response

On 15 March 2020, the President declared a state of disaster and a lockdown was imposed on 27 March 2020, restricting the operation of business except for essential services and imposing far-reaching travel and mobility restrictions (Ministry of Health 2020). During this time, informal food vendors were not part of essential services and, as a result, not permitted to operate. On 2nd April, the regulations were amended to allow informal traders to sell fresh produce. On 1st May, permitted trading was expanded to allow informal traders to sell all categories of food. Travel restrictions were eased on 1st May, before the economy reopened on 1 June 2020. A timeline of events is outlined in Fig. 1.

Demographic data of study participants

A total of 202 WLWH participated in the survey. Participants' households consisted of two adults and a child on average.

We conducted 20 KIIs with various stakeholders involved in the SA food system as outlined in Table 2.

Increased demand for food aid

Food aid providers and WLWH alike reported changes in food access resulting from the Covid-19 pandemic. Participants experienced an increase in the demand for, and the provision of food aid. WLWH participants reported decreasing access to food, particularly among those utilizing the informal food system such as spaza shops (small informal shops in townships) and informal food vendors (Fig. 2) which correlated with disruptions to informal food vending during the early phases of the lockdown. WLWH reported a slight increase in the use of food parcels during the lockdown and though access to food increased following the easing of lockdown restrictions,

Table 2. Participants in key informant interviews

Stakeholder category	Stakeholder role	Number (n)
Informal Traders	Usually sell goods in alongside roads and from informal stores called 'spaza' shops. Also known as street vendors.	8
Non-governmental organizations or actors who provided donations or food aid	Work independently or in collaboration with other organizations. Dependent on donor funding.	6
Government officials	Involved in supervising food provision strategies	2
Academics	Engaged in research related to the impact of COVID-19 on the food system and food security	4
Total		20

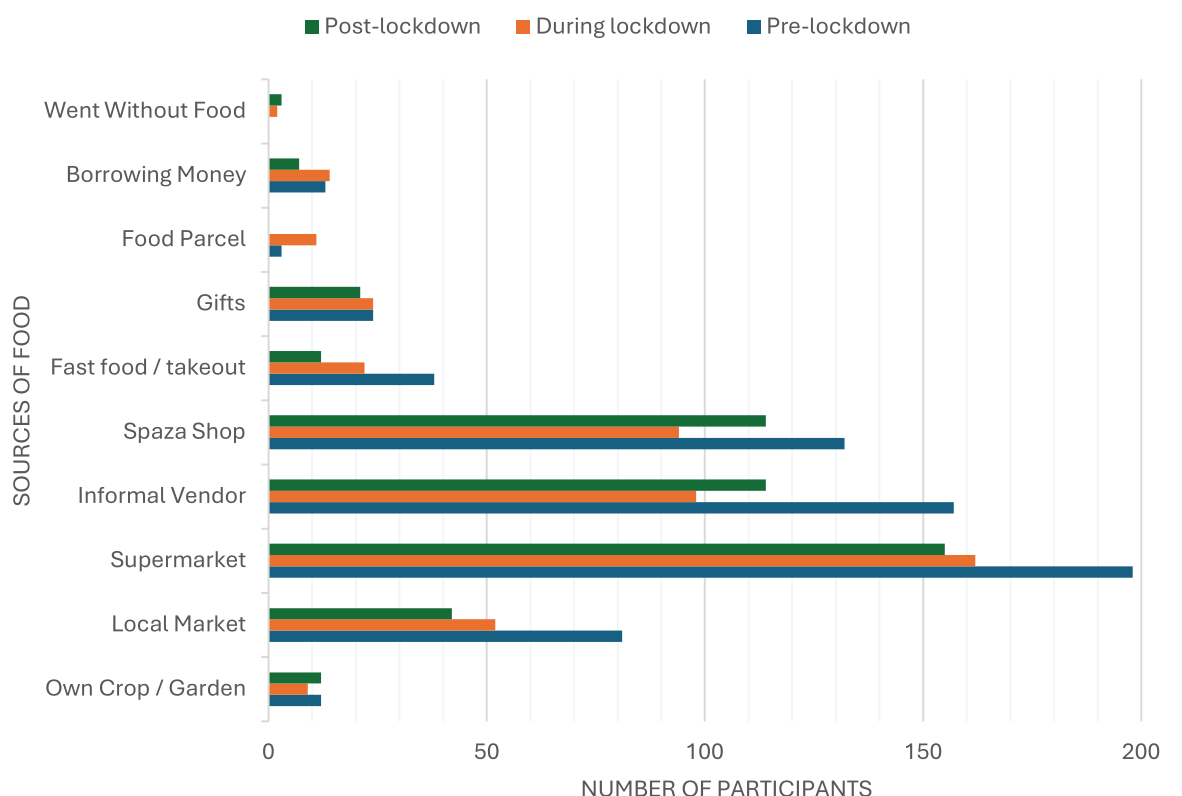
overall food access remained disrupted, and access did not normalize to prepandemic levels (see green rows on Fig. 2).

KII participants attributed the increased demand for food aid to disruptions to the informal food economy and to consumers' loss of income.

What we have seen however is the rise in unemployment caused obviously by the lockdown where micro businesses and small businesses are unable to operate... Many of them [people] have lost the income and we find many of those families are coming for aid (KII 17, NGO Food Aid).

The need for food aid was also perceived as a continuation of pre-existing vulnerability to food insecurity, a difficult issue to address during a pandemic without sufficient systems in place.

People have always been hungry, now the numbers are just more. (KII 17, NGO Food Aid).



Data Table										
Stage	Food Source reported by Survey Participants n(%)									
	Own Crop / Garden	Local Market	Supermarket	Informal Vendor	Spaza Shop	Fast food / takeout	Gifts	Food Parcel	Borrowing Money	Went Without Food
Pre-lockdown	12 (5,94%)	81 (40,1%)	198 (98,02%)	157 (77,72%)	132 (65,35%)	38 (18,81%)	24 (11,88%)	3 (1,49%)	13 (6,44%)	0
During lockdown	9 (4,46%)	52 (25,74%)	162 (80,2%)	98 (48,51%)	94 (46,53%)	22 (10,89%)	24 (11,88%)	11 (5,45%)	14 (6,93%)	2 (0,99%)
Post-lockdown	12 (5,94%)	42 (20,79%)	155 (76,73%)	114 (56,44%)	114 (56,44%)	12 (5,94%)	21 (10,4%)	0	7 (3,47%)	3 (1,49%)

Figure 2. Survey participant reporting on food sources accessed by pre-, during, and postlockdown.

KIIs's observations of lost incomes were confirmed by findings from the WLWH survey (Table 2). Most households of WLWH (81.1%) were adversely affected by loss of income and employment (see changes to income from formal and informal employment in Table 2). Prelockdown, 80.2% of participants were of low SES, with household incomes of below ZAR 5000 (USD 345) per month. During lockdown, 85.0% had incomes below ZAR 5000. Those earning between R5001 and R10 000 reduced significantly during lockdown indicating that some middle-income earners may have been pushed into lower income brackets. More WLWH relied on government grants during lockdown, an increase of 8.5%, while 9.4% more women said they relied on money from friends and family. This increased reliance continued after the relaxation of restrictions.

Informal vendors also noted that increased unemployment amongst their customers negatively impacted sales. Effects of reduced incomes were exacerbated by the price increases which informal vendors had to pass onto customers.

If you go to the market and buy tomatoes at a higher price, and you come and sell at a higher price, people will start to query why you are selling at a higher price, while you got it at the market with a higher price. (KII 11, Informal Trade)

These rising food costs were reported to further limit access to food for WLWH.

We were not allowed to go outside, and things were very expensive at the shops like Shoprite, even an onion was just expensive. (WLWH 130, recipient of grant and parcel)

Disruptions to existing food system

Informal trade was subject to substantial disruptions which could contribute to difficulties in accessing food and increased costs.

Food aid providers also experienced restrictions on their operations. Even when restrictions were eased, requirements to operate remained unclear months into the pandemic.

In the early days, they had this very strict thing about having a certificate to operate, and we were stopped on a number of occasions during work... it became a very confusing situation. It was the third month of Covid where we weren't sure which department were issuing these permits. (KII 20, NGO Food Aid)

An academic participant attributed some of the difficulties in obtaining Covid-19 permits to a lack of infrastructure as many local governments did not have existing permit systems. Both informal vendors and food providers reported that they had experienced harassment from law enforcement officers while trying to operate during the pandemic.

Despite the easement of restrictions, informal trading continued to struggle due to the restrictions on travel and movement which led to a lack of customers.

Difficulties in coordinating food aid provision

Food aid was provided by independently operating NGOs who offered privately funded food aid and contracted service providers providing government-funded food aid. During Covid-19, most aid was provided by established and long-operating organizations though some new organizations were

created in response to the pandemic, providing food, sanitizers, and personal protective equipment.

These stakeholders reported difficulties in coordinating with each other. The lack of a coordinating body left the provision of aid fragmented, with food aid providers and government actors finding it difficult to align their activities.

The problem is that we are working in a very scattered manner and we're isolated even when we are linking. We are not systematically linked. For instance, a person would come to us and a person would still go to Department of Social Development and get double food parcels. (KII 9, Government Food Aid)

Stakeholders also reported limitations in coordinating between the provision of food aid and other types of social safety nets such as the expanded social grant. One of the food aid providers discussed scaling their aid provision back following the introduction of the expanded grant.

When the Minister introduced the SRD [social relief distress grant] ZAR 350 [USD25], we stopped because that was paramount to double dipping or giving people assistance twice. Then all the people that were in need of food parcels were referred to the ZAR 350. (KII 9, Government Food Aid)

This lack of coordination left participants concerned about individuals 'double dipping' or 'abusing' the food parcel system.

Low access to food aid

Though some KIIs reported to target their food aid and parcels toward marginalized communities, these efforts were not reflected in the access to food aid among WLWH. We found that WLWH, representing a vulnerable group, had low access to food aid with no access to food parcels following the easing of the lockdown (Table 3). WLWH reported increasing hunger and not having all the food needed between January and September 2020. Prelockdown, 11 (6.3%) respondents went without food; during the lockdown, this increased to 28 (16.1%); and postlockdown, the numbers fell back to 11 (5.4%) respondents reporting that they had gone hungry.

Survey respondents also had low access to social relief measures. Thirty percent of respondents had received the Covid-19 social grant since March 2020, and 8.9% of respondents reported receiving food parcels. Of all participants, 61 participants (30.1%) did not apply for the food parcel and 41 (20.2%) applied but did not receive a parcel. Reasons for not applying for food parcels included not knowing that they needed to apply or where to apply. The primary reason participants gave for not applying for the grant was that they were foreign nationals ($n = 81$, 41.0%). Twenty-six (13%) participants applied for but did not receive the grant.

Changes in food aid provision systems

Stakeholders reported efforts to scale up food provision in response to the increased demand for food aid. Food aid providers also observed an increase in support and donations from individuals, corporates, and other private sector actors alongside this increase in demand.

.... [moved from] raising ZAR 5 million [USD 338 thousand] a month to [an] average of raising ZAR 15-18

Table 3. Household income and income sources of survey participants before and during the COVID-19 lockdown

	Time period		
	Prelockdown, <i>n</i> (%)	During lockdown, <i>n</i> (%)	Postlockdown, <i>n</i> (%)
Source of income*			
Government grants	52 (25.7%)	69 (34.2%)	60 (29.7%)
Formal employment	133 (65.8%)	82 (40.6%)	107 (53.0%)
Informal employment	65 (32.2%)	40 (19.8%)	47 (23.3%)
Money from friends/family	24 (11.9%)	43 (21.3%)	28 (13.9%)
Monthly household income			
ZAR 1000 or less	23 (11.4%)	30 (17.2%)	40 (19.8%)
ZAR 1001–3000	77 (38.1%)	75 (43.1%)	74 (36.6%)
ZAR 3001–R5000	62 (30.7%)	43 (24.7%)	56 (27.7%)
ZAR 5001–R10000	30 (14.9%)	12 (6.9%)	16 (7.9%)
ZAR 10001 or more	3 (1.5%)	3 (1.7%)	4 (2.0%)
Unknown	7 (3.5%)	11 (6.3%)	12 (5.9%)

Abbreviations: *n*, number; %, percentage; ZAR, SA Rand.

*Participants self-classified their income sources. †Households are categorized as low income if monthly household income is <ZAR 5000 (USD 345), middle income if ZAR 5000–25 600, and upper income if >ZAR 25 601.

Table 4. Perceptions and experiences of KIIS and WLWH of food parcels

	KII food aid perspective	WLWH recipient perspective
Target group	Intended to reach vulnerable groups	- Not reaching those in need - Difficulties in accessing food aid
Acceptability	Efforts to be culturally acceptable	Parcels perceived as ‘demeaning’
Sufficiency/adequacy	- Aimed to meet basic needs - Aid is supplementary in nature	Inadequate amounts of food
Quality/safety	- Sought to ensure items were of sufficient quality - Rigorous safety protocols in place	- Items of poor quality - Sometimes items were expired - Items often opened or improperly sealed
Nutritional composition	- Sought to be nutritionally adequate - Composition also influenced by availability of donations	Did not meet the nutritional needs of individuals on ARVs
Delivery	- Limited coordination among food aid providers - Initial constraints on scaling during pandemic	- Long queues, hard to reach pick up points, lack of dignity - Lack of prioritization of vulnerable groups (e.g. elderly, pregnant women) - Out of pocket payments for transport
Alternatives to food parcels	- Government had negotiated for food vouchers to be introduced at some formal grocery stores - Some support for the provision of food vouchers or expanded social grants	Broad support for vouchers

million [USD 1-1.2million]. Our donors increase quite dramatically. (KII 10, NGO Food Aid)

The support is overwhelming. We received South African support from the private sector to help with our efforts. (KII 17, NGO Food Aid)

However, the increased demand in food aid coupled with increased donations required providers to increase their capacity to supply and deliver the food and, in many instances, this strained the food aid distribution networks. Food aid providers reported difficulties in initially scaling up logistics and distribution to meet the increased demand.

We’ve had a few instances where we had to stop; we could not distribute the food on that day because there was

nobody to provide the transport to deliver the food.... It happened a couple of times. The first two months, then we got a more reliable transportation company and then everything is going back to normal. (KII 20, NGO Food Aid)

Responsiveness of food aid to recipient needs

An analysis of the experience of food aid recipients against the stated intentions of food aid providers showed a mismatch between the contents of the food parcels and the needs and expectations of the recipients. This mismatch affected almost every component of the food parcels from delivery to the quality, the acceptability, and the nutritional adequacy of the food parcels as outlined in Table 4.

Recipients of all forms of food aid expressed gratitude and appreciation for the aid.

It helped a lot of people who were not able to buy food in the community, so it helped a lot because people are now unemployed. (WLWH 113, grant and parcel recipient)

However, their experiences illustrated shortcomings in the food aid system. Participants reported having to stand in long queues for hours to collect their food parcels and often times the demand for food parcels outstripped the supply. In addition, participants reported that collection sites were overcrowded and put recipients at risk for contracting Covid-19.

They put food outside and people would come and push each other trying to get the parcels. They had the doors closed and sometimes you would not get it. (WLWH 142)

In addition, some participants were required to outlay funds to access food aid, such as transportation costs which affected accessibility.

Yes [people borrowed money] to go fetch the food parcel. I also had to lend R12 [USD 0,81] to go fetch the food parcel and we got a lift coming back. (WLWH 175)

WLWH experienced a lack of dignity in the process of accessing food aid.

people were not respected, it was like either you take it, or you leave it. It did not have humanity. Food was not properly packaged; it was like for dogs ... (WLWH 175)

The food parcel was so demeaning. It was not like you are giving to people. (WLWH 175)

Additionally, recipients reported that the food parcels did not contain an adequate amount of food, particularly as the content was not based on recipient household size. Some KIIs reported that food parcels were intended to be supplementary which may have influenced the contents and quantity of food.

The aim of food parcels is to supplement the food recipients have access to at home, "most people eat once a day. ...we make sure that there is enough carbohydrates and protein to give one good meal per day. (KII 17, NGO Food Aid)

Food aid organizations indicated responsibility for ensuring that food provided in parcels met a certain quality of standard; words such as 'nutritionally adequate', 'basic need', 'not expired', 'fit for human consumption', and/ or 'culturally acceptable' were used to describe the criteria of what was included in each parcel.

It is to make sure that the aid we give to people in need has to be accepted by all. (KII 17, NGO Food Aid)

Despite the stated intentions and efforts of food providers, recipients reported that the food parcels they received were not acceptable.

I wouldn't buy those things myself because most of those stuff is some cheap stuff that even when I am broke I don't go for those options. (WLWH 174)

In addition, many aid recipients reported that the contents were not healthy, and the parcels were not of sufficient quality to cater to nutritional and/or health needs of recipients, particularly those who were required to take medication. However, many accepted the aid out of necessity.

It was catering for people that did not have problems and the quantity was little but at the end of the day I was grateful because I did not have food. But it was little because it was just rice, mealie meal and one tin fish and we need to eat healthy and also for the kids. (WLWH 165)

While some NGOs mentioned considering dietary requirements when packaging food aid items, which involved a dietician, the government departments highlighted working with the Department of Health to determine which food items were included in the food parcel.

Food aid providers also recognized that the nutritional value of the contents was important as some recipients of the food aid have chronic illnesses: 'many people are HIV positive or have TB or have chronic illnesses' (KII 17, NGO Food Aid).

However, the composition and contents of food parcels were influenced by several factors, in particular many donations during the pandemic were ad hoc. This led to the contents of the food parcels being highly variable.

Even the private institution, the supermarkets would just bring. People that are owning the big supermarkets would just bring...Somebody would just bring a truck of mealie meal, so it was like that. That's why even the food parcel would vary from day to day. (KII 9, Government Food Aid)

Donations could also impact the contents of the food parcels and result in irregular items being included. 'You get manufacturers giving us Coco or Milo [malt chocolate powder] or items like that. That is just of your food products' (KII 17, NGO Food Aid). Similarly, the budget available for each food parcel in relation to how many people the parcel was required to cater too could play a substantial role in determining the contents of the parcel.

Alternatives to food parcels

Although food parcels and social grants were the primary form of food aid, the government had also implemented a partial food voucher system with a few formal supermarkets. Vouchers could be used to purchase basic food items.

Given the preference for food vouchers, some food aid providers also began offering food vouchers redeemable at large grocery stores.

To this end, some of the organisations had entered into agreements with local supermarkets for the vouchers to be redeemed, "we did a campaign to raise R15000 [USD 989] to buy food voucher, with ShopRite, Checkers.... we provided 60 families with vouchers... R200 [USD 13,20] each. (KII 10, NGO Food Aid)

Despite the limited use of vouchers, many participants in the study indicated a strong preference for the use of cash or vouchers instead of food parcels. This included the WLWH, food aid providers, and other stakeholders.

WLWH respondents were asked their preferred form of food aid. A majority preferred food vouchers ($n = 95$, 47%) or cash ($n = 71$, 35%). Only 28 participants (14%) preferred food parcels and the remaining 4% ($n = 8$) indicated 'other' without specifying a preference. Participants indicated that food parcels do not allow them to decide what they need, and they must take what they are offered, preferring the flexibility provided by vouchers or cash.

Some food aid providers also indicated a preference for vouchers as vouchers were perceived to be quicker, would not strain distribution channels, and be more responsive to the needs of recipients. A potential shortcoming of the food vouchers system was the reliance on formal food outlets where most recipients relied on informal traders. Consequently, a system that includes informal vendors would be more suited to recipient needs.

We wanted a food voucher system that would be useable with like for example [spaza] shops or local street traders that was one of the things we were pushing for. That it doesn't come to a system that you can only use in the Shoprite or Pick n Pay or something. (KII 5, Academia)

DISCUSSION

This study investigated the impact of the Covid-19 pandemic and response on the food aid system. We found that Covid-19 had an adverse impact on the food system accompanied by increased food insecurity and demand for food aid. This aligns with local and global studies showing that the Covid-19 pandemic has increased poverty and food insecurity (Leddy et al. 2020, Mishra and Rampal 2020, Niles et al. 2020, Wolfson and Leung 2020, Gundersen et al. 2021). Despite the best intentions of the government and other key players, Covid-19 restrictions and lapses in coordinating different forms of food assistance hindered the ability of the food aid system to reach those in need.

The increased need for food aid was partly due to disruptions to food sources, particularly informal food vendors, caused by the Covid-19 response. This highlights the precarity and vulnerability of food security. The Covid-19 response and failure to account for the role of informal food sector as an essential service negatively impacted both the availability of food and people's livelihoods. This harmed informal food-traders and their customers, and even as restrictions eased and their trade resumed, the financial and stock losses were so severe to the traders, and that they found it difficult to get their businesses off the ground again (Rwafa-Ponela et al., 2022).

The informal food economy is a critical yet vulnerable avenue to addressing food insecurity. Previous research has underscored how the lack of recognition of informal vendors renders the system particularly vulnerable (Crush and Frayne 2011, Battersby and Marshak 2017, Skinner and Watson 2020). Battersby (2020) described how the initial lockdown regulations illustrated the government's lack of understanding of the informal food economy's role in food systems and reinforced a bias toward the formal food system (Battersby 2020). Our findings reiterate the importance of informal food economy as a primary food source and its precarity. The unintended consequences of the lockdown measures on food insecurity can, to some extent, be attributed to the fact that access

to formal food channels was prioritized, while informal vendors were barred from operating during the lockdown.

It is granted that the Covid pandemic caught the world by surprise, but for the next emergency, there is a need to build resilient systems that improve preparedness for emergencies and reduce unintended consequences. Coordination is a lynch-pin of this preparedness as was highlighted by the Government Food Aid representative in our study who described the confusion in how and to whom aid was given, and which had arisen from different food aid service providers across the different governmental departments 'not [being] systematically linked'. Consequently, food aid beneficiaries went from one department to the next claiming and receiving assistance from multiple departments. Although we found that there were increased donations and support for food aid provision, recipients indicated that this was insufficient.

During Covid-19, NGOs, corporations, and other donors made efforts to address the growing demand for food, especially amongst the indigent. Groups created ways to feed people in their communities by delivering food door-to door and set up systems to distribute charitable contributions (Jamieson and van Blerk 2021). NGOs however found that at times, they had to minimize if not completely abandon their food deliveries, ironically because they received overwhelming support from donors. NGO representatives in our KIIs clarified that the reason for this was logistical. In the early stages especially, organizing distribution as well as accessing sufficient and reliable transportation to deliver the food goods was challenging.

Limited communication about food aid permitting processes delayed food distribution further. Challenges with how to manage especially large amounts of food donations have been a problem even before the Covid pandemic. Akkerman et al. (2023) in their discussion on obstacles encountered by foodbanks explain that transportation is a common problem, particularly where they rely on volunteers, creating uncertainty.

In addition, pre-existing constraints on the food aid system, and the lack of coordination between actors, created logistical and systemic constraints on responding to the increased need for food aid, a phenomenon also described by Mlambo and Khuzwayo (2021). This highlights the inherent limitations on a food parcel model for the provision of food aid in emergency situations. Difficulties in rapidly scaling up provision as well as the fragmentation of food parcel providers indicate that parcels are not suitable mechanism for emergency food aid. While introducing a stronger coordination mechanism could address some of these difficulties, a food parcel model appears to be unsuitable for the SA context.

This is underscored by the key finding of this study, namely that there was a disjuncture between the aspirations of food providers and the experiences of recipients. This disconnect was highlighted by the differing priorities of stakeholders versus the needs of recipients—with government actors and suppliers of food aid seeking to prevent abuse of the food aid system—while those in need of food aid reported being unable to access the support supposedly provided for their benefit. Many of the shortcomings identified in this research appear to emanate from a lack of understanding of communities' needs and how these communities access food. There is thus a need for community engagement, not just when designing food aid systems and introducing policies related to the food system but also in evaluating interventions. By

engaging with the communities targeted by these interventions in a deliberative and ongoing fashion, the shortcomings in acceptability and appropriateness of interventions can be addressed.

This study also highlights the need for real-time data, ongoing evaluation of interventions and meaningful engagement with vulnerable groups to understand the impact of interventions and assess whether they are responsive to the needs of target populations. We noted, e.g., that there was a need for food aid among immigrant communities, but the food aid system was not designed to provide support for these individuals as indicated by the 41% of survey respondents who were foreign nationals. Our study suggests that had government and food aid providers engaged with communities prior to introducing policies, and monitored the impact of these policies, unintended consequences could have been rapidly addressed, and food aid could have been more responsive to the needs of vulnerable communities. Decision-makers responding to crises often do not have sufficient time and, as a result, it is critical for infrastructure, systems, and frameworks to be put in place beforehand.

Finally, the recipients' preference for food vouchers as a food aid system over the existing system of food parcels is both understandable and a potential solution to improve food insecurity in pandemic situations. Research has shown that vouchers and cash systems result in recipients experiencing greater dietary diversity in other low- and middle-income contexts such as Malawi, Ecuador, and Mozambique (Ponce and Ramos-Martin 2017, Zhou and Hendriks 2017, Harou 2018).

In addition, food vouchers or cash grants may be a potential solution to the shortcomings of food parcels outlined in this study (Hauser 2020). The flexibility of these alternatives could serve the needs of the recipients while also allowing aid efforts to scale up in crisis situations without facing the logistical and other constraints arising from traditional model of distribution (preselected box or bag) (Hidrobo *et al.* 2012). This would also avoid any potential waste spurred by unwanted food items not being used and offers a more dignified experience by allowing individuals to choose foods that will supplement their diets. In the context of people living with HIV, this would enable to maximize the potential of food aid to address the nutritional needs of food insecure populations. This finding aligns with the findings of the NIDS CRAMS which captured experiences of food insecurity and suggested that raising the amount of the child support grant could be a mechanism to protect against hunger and address poverty (Jamieson and van Blerk 2021). Arndt *et al.* (2020) similarly found that at a national level, a number of the lockdown measures adopted in response to the pandemic would impact food insecurity in vulnerable households due to losses in income and social relief measures could play a pivotal role in ameliorating these effects (Arndt *et al.* 2020). However, there is a concern that the implementation of food vouchers exclusively in formal grocery stores may undermine the informal food economy and limit their utility (Margaret 2020, Ruth *et al.* 2020). As a result, a system of using food vouchers from other grocery sources such as spaza shops or informal traders versus formal grocery outlets should be explored including how to address some of the implementation challenges that arise with vouchers including feasibility and fraud prevention. This has been used with some success in other contexts (Hauser 2020).

Importantly, while this study focused on food aid, we also recognize the importance of identifying and implementing

long-term solutions to food insecurity that address the circumstances that leave people vulnerable or precarious (Von Braun *et al.* 2003). This includes issues of development, such as increasing levels of employment and income stabilities as well as changes to the food system, such as national procurement systems, to make it more resilient and ensure that access to food is not disrupted during times of crisis (De Klerk *et al.* 2004).

Strengths and limitations

This study analysed the operation of the food aid system in SA during multiple phases of Covid-19, as these changes occurred, and was strengthened by the inclusion and consideration of perspectives of both recipients and providers of food aid.

We faced some challenges in the undertaking of supply-side interviews. Since we conducted the study at the outset of and during the Covid-19 pandemic and prior to the availability of immunizations, the interviews were conducted remotely either telephonically or using online software. This limited our ability to access stakeholders who did not have telephone connectivity for interviews and may have impacted the diversity of participants to some degree. However, the remote nature of the interviews also offered more flexibility and allowed interviews to take place at a time convenient to participants. Stakeholders were willing to participate in the study; however, there were instances where some NGOs felt the organizations they represent were not a good fit for this research.

Our study was also limited to English-speaking participants, potentially limiting our sample or the quality of responses for non-native English speakers. The survey was limited to people living in Gauteng province, participating in an ongoing trial. While this allowed access during Covid-19, the participants were limited to women living with HIV, many of whom did or could not access government food aid. This limits the generalizability of the results.

CONCLUSION

The Covid-19 pandemic and response had a substantial impact on the food system resulting increased food security and demand for food aid. Despite efforts to scale up the provision of food aid, this study illustrates the limitations of a food parcel aid model. The inflexibility of the current food parcel model and its reliance on donations render the parcel model ill-equipped to meet the needs of SAs diverse population. This study also illustrates the need for ongoing engagement and monitoring of policies implemented rapidly in crises to ameliorate and avoid unintended consequences. We recommend the adoption of a more flexible food aid model such as food vouchers, integrated into the informal food economy, to address some of these shortcomings.

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Author contributions

S.A.K. conceptualized and designed the study, analysed the data, and wrote the manuscript. P.K., T.R.P., A.N., and S.L.E. collected and analysed the data, and reviewed and edited the manuscript.

Conflict of interest

T.R.P. is a member of the editorial board of Health Promotion International but had no role in the decision on this manuscript. The other authors have no conflicts of interest to declare. The authors declare that they have no competing financial interests or personal relationships that could have influenced the research reported in this paper.

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Data availability

The dataset associated with this publication may be made available on request subject to further ethical approval. Please contact the corresponding author.

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