

HIV in the Eastern Cape province of South Africa threatens farm employment and food security

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ABSTRACT

Introduction: Human immunodeficiency virus' (HIV's) threat to food security is highest in areas with high poverty levels. The OR Tambo district in the Eastern Cape province has the highest poverty rate in South Africa (80.4%); HIV prevalence is 11.4%.

Objective: The purpose of the study was to describe the threat that HIV poses to farm employment and food security in the Eastern Cape province of South Africa.

Methods: A multi-method approach was used. The quantitative component was a cross-sectional design and the qualitative component was a narrative design. The study population comprised approximately 7 000 smallholder farmers from the five local municipalities in the OR Tambo district. Participants for both the qualitative and quantitative aspects of the study were selected using convenience sampling. Quantitative data were collected using questionnaires and qualitative data were collected from face-to-face interviews. Quantitative data were analysed using descriptive statistics and the chi-square test. Qualitative data were analysed using Tesch's eight-step procedure for thematic content analysis.

Results: Five hundred and ninety-three farmers completed the questionnaire. Most agreed that HIV affects food security (n = 486, 72.0%), that HIV negatively affects food security (n = 454, 76.6%), that people living with HIV are excluded from farming activities (n = 426, 71.8%), and that HIV affects farming skills (n = 495, 83.5%). A significantly larger proportion of farmworkers older than 60 years than those who were younger perceived the threat to food security. Twenty participants described the effect of HIV on farm workers in interviews, and highlighted that HIV impacts farm skills and labour due to ill health and lost income from farming, which threatens food security.

Conclusion: HIV threatens food security among smallholder farmers in the OR Tambo district due to farmworkers' diminished capacity to work and consequent reduced income, which affects their ability to secure food.

INTRODUCTION

Human immunodeficiency virus (HIV) and acquired immunodeficiency disease (AIDS) mostly affect people in their productive ages.¹ People living with AIDS (PLWA) develop debilitating infections and/or cancers, which affect economic productivity, including farming.¹ Farming, including planting and harvesting, is labour intensive and requires high levels of physical fitness.² In the OR Tambo district in the Eastern Cape province of South Africa, farming is the main land use and provides employment and food security.³ HIV poses a threat to both as PLWA are unable to continue farming activities that secure the supply of food.⁴

In the South African agriculture industry, workers are employed on either mechanised, well-resourced, large commercial farms, which produce around 95% of all food on 87% of agricultural land,^{5,6} or smallholder farms, which occupy 13% of the land and where livestock is the main source of income.⁵ These smallholder farmers also cultivate maize, cabbages, potatoes, and other crops, which provide a secondary source of income of approximately R26 000 annually.⁵ A larger proportion of workers is employed on smallholder farms than on commercial farms; the estimated four million farmers are becoming increasingly diverse in terms of income and capacity to produce.^{6,7} Poverty and poor farm performance have been identified as causes of food insecurity, especially for poorer smallholder farmers.⁷

Food security is defined as access to food (physically and economically) all the time.⁸ Researchers have noted that HIV impacts food security through related mortality, morbidity, and the care burden on family members.⁹⁻¹¹ In a study conducted in Nigeria, it was reported that PLWH who are involved in agricultural activities spend 11.4–16.6 hours on agricultural activities, compared to 33.6 hours spent by those without HIV.⁹

The threat to food security by HIV is exacerbated in countries with high HIV prevalences and high levels of poverty, and in areas where there is poor agricultural management.¹² The threat posed by HIV to farm employment and food security does not only impact PLWH. In the study conducted in Nigeria (Ater et al., 2018), the average number of people involved in agricultural production was three in families with PLWH compared to four in families without PLWH.⁹ A study in Nepal reported that HIV infection reduces productivity by at least 5.05 days per month.¹ Furthermore, food security is affected by a decline in agricultural skills due to HIV-related mortality, incapacity due to illness, and/or time lost in imparting skills due to care demands.¹³

The OR Tambo district is one of seven district municipalities in the Eastern Cape province of South Africa. It is predominantly rural (93%) and the major land use is agriculture, including subsistence farming (smallholder farms).¹⁴ The HIV prevalence in the district is estimated at 11.1% and it is ranked the poorest in South Africa; 80.4% of people were estimated to be living in poverty in 2020,¹⁴

defined as a lack of financial and material resources among people or communities. The World Bank measures this by the number of people living on less than US\$1.90 per day.^{7,14}

The social ecological model (SEM) underpins this study and takes a critical perspective of the interaction of HIV infection and food security that recognises four levels of health determinants.¹⁵ At the individual level, health, age, and socio-economic status determine the level of food security. At the relationship level, food security is determined by family characteristics such as number of dependents. At the community level, rules and regulations that govern farm work or access to healthcare facilitate or inhibit access to treatment, affecting productivity and food security. The fourth level is societal and includes public policy, which ensures synergies of institutions such as clinics and commercial farms.

The high poverty rate in the OR Tambo district, where HIV is the leading cause of death and agriculture is the main land use, rationalised the need to conduct the study in this district. The purpose of the study was to describe farm workers' perceptions about the threat of HIV to farm employment and food security. Understanding the perceptions of the farm workers regarding these issues addressed a research gap outside the healthcare system.

METHODS

The study was conducted amongst rural smallholder farm workers in the five local municipalities of the OR Tambo district, viz. Port St. Johns, King Sabatha Dalindyebo, Mhlontlo, Nyandeni, and Ingquza Hill, using a multi-method approach. Data were collected in April and May 2022.

Quantitative aspect

A cross-sectional study design was used. The study population was all farm workers in the five local municipalities (approximately 7 000).¹⁴ Convenience sampling was used to select the participants, based primarily on distance that needed to be travelled to locate the potential participants. A sample size of 710 was calculated, using sampling tables described by Orban (2021),¹⁶ based on 95% confidence and a 3.5% margin of error.¹⁶

Quantitative data were collected using a questionnaire administered in English and IsiXhosa. The first section comprised five questions, regarding socio-demographic data (age, sex, marital status, ethnicity, and level of education). The second section contained four questions about HIV and food security.

A pilot study was conducted in March 2022 to test the feasibility of the study. The pilot study comprised 30 respondents, who were not included in the main study.

Data analysis

Descriptive analysis was conducted, using the Statistical Package for Social Sciences (SPSS) version 0.26 and Microsoft Excel. The chi-square test was used to test for associations between the demographic variables and perceptions. Significance was determined at $p \leq 0.05$.

Qualitative aspect

The qualitative aspect of the study took a narrative approach. Farm workers who did not participate in the quantitative aspect of the study were selected, using convenience sampling. In-depth interviews were conducted with the aid of a semi-structured interview guide, in IsiXhosa and English; all were audio recorded. Data collection stopped once data saturation was reached.

Data analysis

Tesch's eight-step procedure for thematic analysis was used to analyse the qualitative data after transcribing and translating the recorded data.¹⁷ Trustworthiness was ensured by using Lincoln and Guba's (2005) framework.¹⁸ Credibility was ensured by the participants confirming the findings of the study, and using peer researchers who checked that the findings did not reflect the views of the researchers. Dependability was ensured by triangulating study findings with those from the quantitative aspect of the study. Confirmability was ensured by checking and rechecking data throughout the data analysis process. Transferability was ensured by describing the study setting and procedures used in conducting the study in the OR Tambo district.

Ethical considerations

Ethical clearance for the study was granted by the University of South Africa College of Human Sciences Research Ethics Review Committee (reference number 90269543_CREC_CHS_2021). Permission to conduct the study was also granted by the Department of Rural Development and Agriculture and individual farms where the study was located.

RESULTS

Socio-demographic characteristics

A total of 593 of the 710 participants who were sampled completed the questionnaire (83.5% response rate).

The ages of the respondents ranged from 18 to 88 years. The proportion of males and females was similar (Table 1). Most participants were single ($n = 323$, 54.5%) and most were black African ($n = 555$, 93.9%). The majority of the respondents ($n = 297$, 50.1%) had a secondary education.

As shown in Table 2, the majority of the respondents agreed that HIV may affect food security ($n = 486$, 72.0%) and that HIV has a negative impact on food security ($n = 454$, 76.6%). Most respondents ($n = 426$, 71.8%) agreed that PLWH are excluded from farming activities, and most ($n = 495$, 83.5%) agreed that scarce skills experience is diminishing farming communities due to HIV and AIDS (Table 3).

Most respondents in all age groups agreed with the statements that HIV is a threat to food security. A slightly greater proportion of participants older than 60 years agreed that HIV is a threat to food security than those in younger age groups for all statements other than "*people living with HIV are excluded from farming activities*" (Table 4).

A greater proportion of males than females agreed with all four statements. For example, 248 (51.8%) men agreed that PLWH are excluded from farming activities, compared to 178 (45.9%) females. The differences were small and ranged from 0.4% to 6%.

Twenty farm workers participated in the qualitative interviews and were aged 25 to 61 years (mean 41.4 years, $SD \pm 12.5$). Twelve were male and eight were female.

Participants noted how HIV affected labour due to ill health and consequent loss of employment. They also explained how loss of income from livestock resulted in food insecurity, and how skills in farming were lost due to ill health, which diminished the capacity to produce food and income for food security. Three main themes emerged.

Theme 1. HIV impacts farming skills

The first theme was 'HIV impacts farming skills', which came from shared experiences about how scarce skills and experiences in the farming community are diminishing due to HIV and AIDS.

Participants explained how AIDS-related deaths resulted in loss of farm workers and farming skills. This loss of skills also affected children of farm workers who died without imparting their skills.

“Due to deaths in families, there is less or no parent-to-child transmission of agricultural and livestock knowledge and skills.” (participant 6)

“There will be less workers left if most people fail to manage their positive status, those who are skilled for the development of farming will be less likely to work if they do not take HIV medication to manage the disease.” (participant 10)

Theme 2. HIV impacts labour, which decreases food production

The second theme was ‘HIV impacts labour, resulting in decreased food production’ and was elicited from the discussion on the effect of HIV on food production. Participants described how farm sizes were diminishing because of reduced labour.

“There will be a decline in harvests because of labour and input shortages, people are sick from HIV related illnesses, farms are slowly diminishing in OR Tambo district.” (participant 3)

They also described that this was a consequence of taking time off from work, which resulted in reduced earnings that affected food security. One participant described how labour on farms was affected by death due to HIV, which resulted in reduced working times as people attended funerals.

“Since there are so many deaths of our loved ones, there is less of productive time because we must attend funerals and grieve or mourn for them. The mourning usually takes months without going to work.” (participant 15)

Table 1. Socio-demographic characteristics of study participants (N = 593)

| Characteristic | Value | n | % |
|----------------|-----------------------|-----|------|
| Age (years) | < 30 | 249 | 42.0 |
| | 31–40 | 104 | 17.5 |
| | 41–50 | 115 | 19.4 |
| | 51–60 | 47 | 7.9 |
| | > 60 | 78 | 13.2 |
| Sex | Male | 303 | 51.1 |
| | Female | 290 | 48.9 |
| Marital status | Married | 213 | 35.9 |
| | Single | 323 | 54.5 |
| | Divorced | 44 | 7.4 |
| | Unmarried, cohabiting | 13 | 2.2 |
| Ethnicity | Black African | 555 | 93.9 |
| | Caucasian | 11 | 0.2 |
| | Indian | 18 | 0.3 |
| | Coloured | 34 | 5.7 |
| Education | None | 36 | 6.0 |
| | Primary | 141 | 23.8 |
| | Secondary | 297 | 50.1 |
| | Tertiary | 119 | 20.1 |

Table 2. Perceptions about the threat of HIV to food security (N = 593)

| Statement | Response* | n | % |
|--|-----------|-----|------|
| HIV and AIDS may affect food security | Agree | 486 | 72.0 |
| | Disagree | 107 | 18.0 |
| People living with HIV are excluded from farming activities | Agree | 426 | 71.8 |
| | Disagree | 167 | 28.2 |
| HIV and AIDS have a negative impact on food security | Agree | 454 | 76.6 |
| | Disagree | 139 | 23.4 |
| Skills and experience in farming communities are diminishing due to HIV and AIDS | Agree | 495 | 83.5 |
| | Disagree | 98 | 16.5 |

*Agree' includes 'strongly agree', 'disagree' includes 'strongly disagree'

Table 3. Perceptions of HIV and food security among farm workers, by age group (N = 593)

| Statement | Age group (years) | Agree* | | Disagree* | | Total | p value |
|--|-------------------|--------|-------|-----------|------|-------|----------|
| | | n | % | n | % | | |
| HIV and AIDS may affect food production | < 30 | 169 | 67.9 | 80 | 32.1 | 249 | 0.0020 |
| | 31–40 | 96 | 92.3 | 8 | 7.7 | 104 | |
| | 41–50 | 103 | 89.6 | 12 | 10.4 | 115 | |
| | 51–60 | 46 | 97.9 | 1 | 2.1 | 47 | |
| | > 60 | 77 | 98.7 | 1 | 1.3 | 78 | |
| People living with HIV and AIDS are excluded from farming activities | < 30 | 135 | 54.2 | 114 | 45.8 | 249 | < 0.0001 |
| | 31–40 | 80 | 76.9 | 24 | 23.1 | 104 | |
| | 41–50 | 90 | 78.3 | 25 | 21.7 | 115 | |
| | 51–60 | 47 | 100.0 | 0 | 0.0 | 47 | |
| | > 60 | 74 | 94.9 | 4 | 5.1 | 78 | |
| HIV and AIDS have a negative impact on food security | < 30 | 152 | 61.0 | 97 | 39.0 | 249 | < 0.0001 |
| | 31–40 | 83 | 79.8 | 21 | 20.2 | 104 | |
| | 41–50 | 100 | 87.0 | 15 | 13.0 | 115 | |
| | 51–60 | 44 | 93.6 | 3 | 6.4 | 47 | |
| | > 60 | 75 | 96.2 | 3 | 3.8 | 78 | |
| Skills and experience in farming communities are diminishing due to HIV and AIDS | < 30 | 191 | 76.7 | 58 | 23.3 | 249 | 0.0300 |
| | 31–40 | 87 | 83.7 | 17 | 16.3 | 104 | |
| | 41–50 | 100 | 87.0 | 15 | 13.0 | 115 | |
| | 51–60 | 41 | 87.2 | 6 | 12.8 | 47 | |
| | > 60 | 76 | 97.4 | 2 | 2.6 | 78 | |

*Agree' includes 'strongly agree', 'disagree' includes 'strongly disagree'

Table 4. Perceptions of HIV and food security among farm workers, by sex (N = 593)

| Statement | Sex | Agree* | | Disagree* | | Total | p value |
|--|--------|--------|------|-----------|------|-------|----------|
| | | n | % | n | % | | |
| HIV and AIDS may affect food production | Male | 266 | 87.8 | 37 | 12.2 | 303 | 0.0020 |
| | Female | 220 | 75.9 | 70 | 24.1 | 290 | |
| People living with HIV and AIDS are excluded from farming activities | Male | 248 | 81.8 | 55 | 18.2 | 303 | < 0.0001 |
| | Female | 178 | 61.4 | 112 | 38.6 | 290 | |
| HIV and AIDS have a negative impact on food security | Male | 255 | 84.2 | 48 | 15.4 | 303 | < 0.0001 |
| | Female | 199 | 68.6 | 91 | 31.4 | 290 | |
| Skills and experience in farming communities are diminishing due to HIV and AIDS | Male | 272 | 89.8 | 31 | 10.2 | 303 | < 0.0010 |
| | Female | 223 | 76.9 | 67 | 23.1 | 290 | |

*'Agree' includes 'strongly agree', 'disagree' includes 'strongly disagree'

Sub-theme 2.1 Loss of employment due to ill health

A sub-theme that supported the theme 'HIV impacts labour' was loss of employment due to ill health. Participants explained how farm workers with HIV take time off due to illness, and how such absenteeism results in dismissal. Thus, ill health reduces the time spent at work, which affects income and food security.

"If the virus becomes uncontrollable, people could lose jobs because of frequent illnesses and having to take time off from work." (participant 5)

"People who are working in the farm could lose their jobs because of being ill all the time. Farm bosses do not tolerate being absent from work all the time." (participant 8)

Theme 3. Reduction in income from farming threatens food security

The third theme was 'reduction in income from farming threatens food security', which emerged in response to the question about the impact of HIV and AIDS on food security. Participants shared their experiences of selling livestock – their source of income and food – to meet healthcare and funeral costs due to HIV. They also explained that income from looking after the livestock was depleted as people living with HIV did not have the capacity to do this. This affected food security among PLWH.

"Those who own farming livestock, they are now selling their livestock and other assets for health treatment and burial of their loved ones." (participant 5)

"There is a drop in capacity of men, women, boys and girls to manage livestock resources because they cannot afford to, we need more money for stock farming." (participant 11)

DISCUSSION

We sought to describe perceptions amongst farmworkers in the OR Tambo district of the Eastern Cape province about the threat of HIV to farm employment and food security. The majority of respondents agreed that HIV threatens food security. This perception was supported by the findings from the qualitative interviews where participants concurred, and explained that this threat to food security emanates from a decline in the food produced due to time taken off because of ill health.

Ater et al. (2018), in a study in Nigeria, reported that HIV results in less time allocated to farming activities, resulting in decreased agricultural production.⁹ Ill health due to HIV affects

the nature of farming as an occupation. Malanski, et al. (2019), after conducting a study in France, noted that farming activities are labour intensive and physically demanding in the absence of mechanisation among small-scale subsistence farmers.² Farm workers in our study highlighted how ill health affected labour, resulting in decreased food production. Consequentially, HIV affects the common economic activity in the OR Tambo district, namely farming.³

Most of the study participants agreed that PLWH are excluded from farming activities. Those who were interviewed described how constant ill health resulted in dismissal from work. A study conducted in Nepal reached a similar conclusion, reporting that PLWH work for fewer hours on farms than those who are not infected, as they seek treatment or cannot work due to ill health.¹

Most of the study participants agreed that HIV has a negative impact on food security. This was supported by the participants who were interviewed; they explained that the negative impact of HIV on food security was also through the selling of livestock to meet the costs of funerals due to HIV-related deaths. This illustrates the cyclical impact of HIV on food security. Farming communities are forced to sell their livestock, which depletes both income and food. The USAID defines food security as physical or economic access to food all the time;⁸ the disposal of livestock described by participants in this study threatens both physical and economic access to food.⁸

The majority of the respondents in the quantitative aspect of the study agreed that HIV resulted in loss of farming skills. Participants who were interviewed described how death and illness due to HIV left children and others without farming skills. These findings are similar to those from a study in Nigeria which concluded that HIV impacts on imparting agricultural skills due to illness or care demands.¹⁰

The SEM was used as the theoretical framework for the study. At the individual level, we found that the threat of HIV to employment was associated with potential dismissals due to ill health as farm workers sought healthcare. This threat to employment in turn threatens food security, which is dependent on income from farm employment. At the relationship level, the loss of skills within families due to HIV threatens food security. At the third level – the community – the exclusion of PLWH from farming activities results in food insecurity while, at the fourth (societal) level, the loss of income due to HIV threatens food security on a larger scale.

The sampling strategy (convenience sampling) is a limitation of the study. The findings may not be generalisable to all farm workers in the OR Tambo district.

CONCLUSION

Our findings show that farm workers perceive a threat to food security from HIV in the OR Tambo district, through loss of agricultural productivity as a result of exclusion of PLWH from farming activities due to illness and death, and loss of income and skills. Higher proportions of older than younger farm workers, and males than females, perceived the threat to food security. We recommend that further research be conducted to describe the impact of HIV on food security, beyond perceptions, among older and male farm workers. Understanding these differences in perceptions between men and women and among the different age groups enables equitable allocation of resources to mitigate the threat of HIV to farm employment and food security.

KEY MESSAGES

1. Farming communities in the OR Tambo district feel threatened by food insecurity as a result of HIV.
2. Threats to employment and food security are especially concerning in a poor community that sells livestock to mitigate the financial impact of HIV.
3. People living with HIV are excluded from farming due to ill health, which exacerbates food insecurity.

DECLARATION

The authors declare that this is their own work; all the sources used in this paper have been duly acknowledged and there are no conflicts of interest.

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AUTHOR CONTRIBUTIONS

Conception and design of the study: NLM, LNM, TRN

Data acquisition: LNM

Data analysis: NLM

Interpretation of the data: NLM

Drafting of the paper: LNM, NLM

Critical revision of the paper: TRN, NLM, LNM

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