

# Economic, Social, and Demographic impacts of drought on treatment adherence among people living with HIV in rural South Africa

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## 1. Background

- Extreme weather events (EWEs) (e.g. floods & droughts) are recurrent in Southern Africa, for example
  - **2019-2022: Recurrent floods** in Zimbabwe, Mozambique, & KwaZulu-Natal (KZN)
  - **2015: severe drought** in KZN
- **EWEs** increase vulnerabilities of people with HIV:
  - Life and livelihood losses
  - Economic disruptions
  - Power outages
  - Decreased access to healthcare(1)



Fig 1: Picture of a dead cow during the 2015 drought

## 2. Aims

To investigate the economic, social, and demographic impacts of 2014-2015 droughts on HIV treatment adherence among people with in rural KZN, South Africa.

- **Hypothesis:** Drought increases vulnerability in PLHIV, forcing them to make trade-offs between healthcare utilization and pursuit of economic sustenance (Fig. 2).

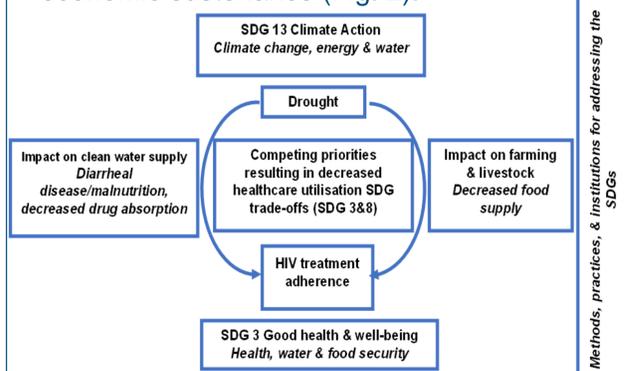


Fig 2: Channels between drought & HIV treatment adherence

## 3. Methods

- Study in Hlabisa sub-district, uMkhanyakude district, northern KZN, South Africa.
- We conducted **in-depth face-to-face** interviews with two cohorts of PLHIV (≥18 years) in the Hlabisa sub-district:
  - 1) individuals actively in care (IC) and
  - 2) individuals who defaulted (OC)
- PLHIV were randomly recruited through the AHRI population intervention platform (PIP)
- Fieldwork conducted between August 2019 and October 2020.
- Used thematic analysis to identify emerging themes; and 'systems thinking' to develop a conceptual framework of the relationship between drought and ART adherence.(2)

## 4. Findings

- Interviewed 27 PLHIV – 16 (IC) & 11 (OC): (15 females: median age, 40 years (IQR 30-49).
- **Economic, social, & mobility** issues / challenges contributed directly or indirectly to poor adherence and interruption in care (see, systems diagram Fig. 3).
  - **Economic shocks:** Losses & increased food insecurity.
    - Because of the drought I am not able to eat and take my pills. However, when there is no drought I am able to farm and ... I take my vegetable, and make whatever I make, eat and drink my pills. [Female, 49 years-OC]
  - **Social:** Insufficient access to water (sources) & consequent water insecurity.
    - I had to fetch my pills, [but] I could not because I had to get up and fetch water, there was no water. [Female, 27 years-OC]
  - **Mobility:** Nuanced experience of out-migration and reluctance; mobility often involved livestock.
    - At some point I was not residing here... it was discovered that the pill is not effective in my blood system... because I had not been taking my pills... [because] I could [not] come back here [Mtubatuba] at month-end to refill my treatment... [Male, 42 years-OC]

## 5. Relationship between Drought & ART Adherence

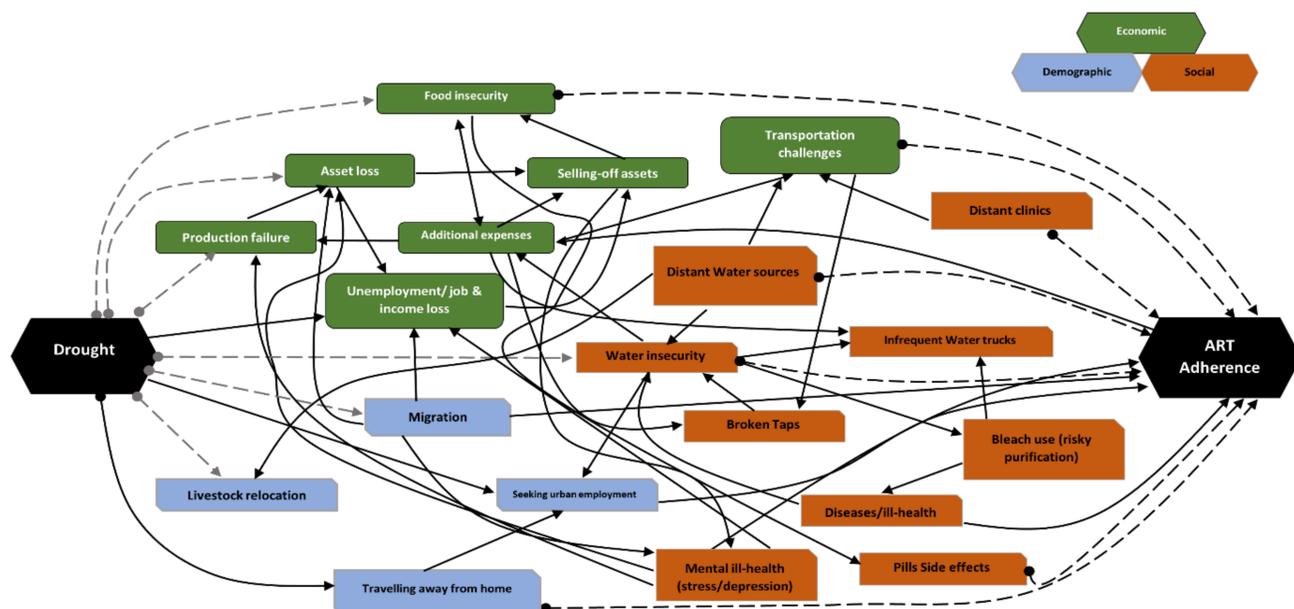


Fig 3: Systems diagram depicting links between drought and HIV treatment adherence conceptualized from interviews with participants.

## 6. Discussion

We show multidimensional relationships between drought and HIV care outcomes (see Fig. 3)

- Food and water insecurity are inextricably linked to migration and result in poor ART adherence and retention in care
- Contextual vulnerabilities, linked to poverty and unemployment force, people to prioritize food and economic sustenance over health care
- These findings are in keeping with other studies in Hlabisa subdistrict and other settings in sub-Saharan African countries (3-8)

## 7. Recommendations

- Further research to understand the health impact of EWEs is required.
- Identify local drivers of vulnerabilities so that interventions can be targeted accordingly.
- Drought relief – cash support, borehole installations, food banks, and consistent water truck presence in the communities – to lessen competing priorities over the disposal of minimal resources between water purchase, transportation, feeding, and attending to treatment.
- Adopt a whole-systems approach to improving public health in general such as ensuring water and food security.

References:

[1]. Stanke C, et al. Health effects of drought: a systematic review of the evidence. PLoS currents. 2013;5. [2]. Orievulu K, et al. Economic, social and demographic impacts of drought on treatment adherence among people living with HIV in rural South Africa: A qualitative analysis. CRM. 2022;36:100423. [3]. Iwuji C, et al. Universal test and treat is not associated with sub-optimal antiretroviral therapy adherence in rural South Africa: the ANRS 12249 TasP trial. Journal of the International AIDS Society. 2018;21(6):e25112. [4]. Adeniji OV, et al. Factors affecting adherence to antiretroviral therapy among pregnant women in the Eastern Cape, South Africa. BMC Infectious Diseases. 2018;18. [5]. El-Khatib Z, et al. Adherence and virologic suppression during the first 24 weeks on antiretroviral therapy among women in Johannesburg, South Africa - a prospective cohort study. BMC Public Health. 2011;11. [6]. Weiser SD, et al. Changes in Health and Antiretroviral Adherence Among HIV-Infected Adults in Kenya: Qualitative Longitudinal Findings from a Livelihood Intervention. AIDS and behavior. 2017;21(2):415-27. [7]. Gwatarisa P, Manderson L. Food Insecurity and HIV/AIDS in Low-income Households in Urban Zimbabwe. Human Organization. 2009;68(1):103-12. [8]. Austin KF, et al. Drying Climates and Gendered Suffering: Links Between Drought, Food Insecurity, and Women's HIV in Less-Developed Countries. Social Indicators Research. 2021;154(1):313-34.