Associations Between Mental Health Disorders and HIV Treatment Outcomes Among Adults in HIV Care in Cape Town, South Africa

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Background

- Mental health and substance use disorders (MSD) are common among people living with HIV (PLHIV) and associated with suboptimal HIV treatment outcomes.
- We described the incidence of MSD and associated factors among adults receiving antiretroviral therapy (ART) at the Gugulethu Community Health Centre and the Tygerberg Academic Hospital in Cape Town, South Africa.

Objectives

- To describe the incidence of diagnosed and treated MSD among adults receiving antiretroviral therapy in two ART programs in Cape Town.
- To compare HIV treatment outcomes between people with and without MSD.

Methods

Data

- ART records from adults who initiated ART between 2004 and 2017 at the Gugulethu or Tygerberg clinics were linked to pharmacy dispensing and hospital discharge data by the Western Cape Provincial Health Data Centre using unique patient identifiers.

Definitions

- Patients who received psychiatric medication were admitted to psychiatric ward, or admitted to a hospital for a mental, behavioral or substance use disorder [ICD10 F00-F99] were classified as having MSD.
- Viral load suppression (VLS) was defined as having a viral load <1,000 copies/ml and unsuppressed viral load (UVL) as a viral load of ≥1000 copies/ml.
- Patients late for a clinical visit for more than 180 days were classified as lost to follow-up (LTFU).
- Mortality was documented by the HIV programs and updated by linking ART records to the vital registry.

Statistical analysis

- Patients were followed from the start of ART for up to 10 years.
- We determined the cumulative incidence of pharmacological treatments of MSD and hospital admissions for MSD using the Kaplan-Meier method. Patient data were left-truncated at the start of 2010.
- We used a multi-state model (Figure 1) to model patients' transition between ART outcomes.
- We calculated hazard ratios (HR) for MSD (vs. no documented treatment for MSD) for each transition.
- Regression models were adjusted for gender, age, WHO clinical stage, and CD4 count, at ART initiation.
- We fitted separate models for each clinic, and a combined model for both clinics, which we stratified by clinic.

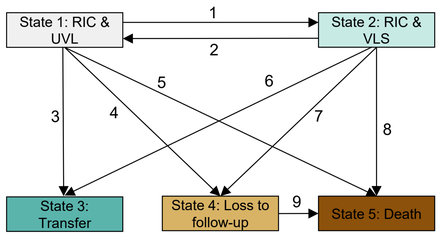


Figure 1: Multi-state model of ART outcome

RIC: retained in care; UVL: unsuppressed viral load; VLS: virally suppressed. The numbers along the edges define the transitions analyzed in Figure 4.

Results

- We included 12,113 patients from Gugulethu and 4,611 from Tygerberg, for a total of 16,724 patients.
- Characteristics of patients were similar in Gugulethu and Tygerberg.
- Median age at ART initiation was 32 years (IQR 27-39).
- The majority of patients were female (70.7%, 11,820), and around half of the patients initiated ART in WHO clinical stage III or IV (49.9%, 8,346).
- Median CD4 count at ART initiation was 159 cells/μL (IQR 83-246).
- The percentage of patients treated for MSD was 4.0% (484) at Gugulethu, 13.4% (623) at Tygerberg, and 6.6% (1,107) overall.
- The cumulative incidence for pharmacological treatment of MSD after 10 years on ART was 6.2% (95% CI 5.5-6.8) in Gugulethu and 21.1% (95% CI 19.4-22.7) in Tygerberg (Figure 2).
- The cumulative incidence for hospital admissions of MSD after 10 years on ART was 1.4% (95% CI 1.1-1.7) in Gugulethu and 3.6% (95% CI 2.8-4.3) in Tygerberg. (Figure 2)

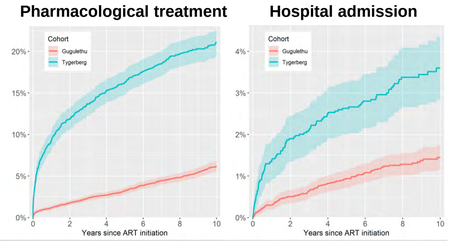


Figure 2: Cumulative incidence of pharmacological treatments or hospital admission for MSD

- In both sites, mortality, LTFU and UVL was more common in patients with a history of MSD (Figure 3).
- Adjusted hazards ratios (aHR) comparing time to transition from UVL to VLS between patients with and without history of MSD were 0.83 (0.74-0.94) (Figure 4).
- History of MSD was associated with increased aHRs for transitioning from VLS to UVL were 1.34 (1.08-1.66) (Figure 4).
- History of MSD was also associated with increased aHRs for transitioning from VLS to LTFU were 1.54 (1.29-1.84) (Figure 4).
- The rate of transitioning from VLS to death or from LTFU to death was higher among patients with a history of MSD: aHRs were 2.07 (1.56-2.75) for transitioning from LTFU to death and 3.62 (2.49-5.25) for transitioning from VLS to death (Figure 4).

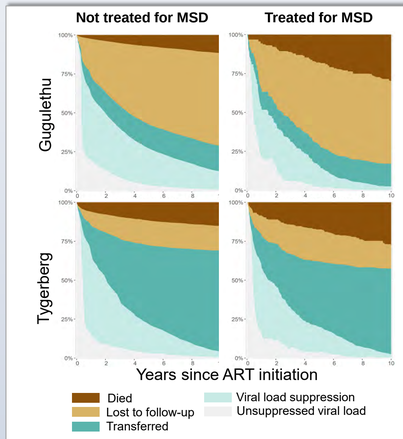


Figure 3: Cumulative transition probabilities for ART outcomes for patients treated and not treated for MSD

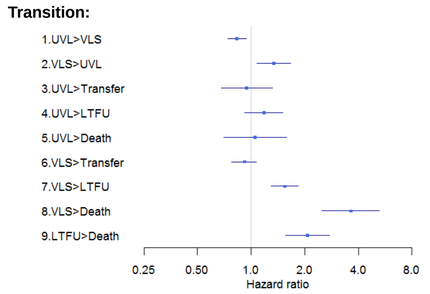


Figure 4: Adjusted hazard ratios for MSD treatment vs. no MSD treatment, within each transition of the multi-state model

UVL: unsuppressed viral load; VLS: viral load suppression; LTFU: lost to follow-up. Models are adjusted for gender, age, CD4 count, and WHO clinical stage and are stratified by ART program.

Conclusions

- Despite likely substantial underascertainment of MSD by basing our definition of MSD only on patients who were diagnosed and treated, there is a substantial burden of MSD among patients on ART in Cape Town, both in a Community Health Clinic cohort and a tertiary hospital cohort.
- The higher incidence of ascertained MSD in the hospital setting likely reflects a combination of differences in underlying incidence in the two patient populations, possibly reflecting referral patterns, and differences in ascertainment of MSD.
- The associations between history of MSD with higher mortality, LTFU and UVL underline the urgent need for increased efforts to diagnose and manage MSDs among patients receiving ART.

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