

ABSTRACT

Background: Quality of life (QOL) has become an increasingly relevant outcome measure in antiretroviral therapeutic research and practice, giving a holistic picture of the well-being of patients living with HIV. The burden of HIV-related treatment challenges, such as side effects and pill burden has presented new public health challenges. Therefore, the aim of the study was to investigate direct and indirect pathways that affect the quality of life among PLWHA in Johannesburg, South Africa on second-line antiretroviral therapy over 48 weeks

Methods: The secondary data analysis utilized data from male and female HIV-1 positive participants receiving second-line Anti-Retroviral Therapy (ART) in Johannesburg over 48 weeks. Data were analyzed from a clinical trial which evaluated the non-inferiority of ritonavir-boosted darunavir (DRV/r 400/100 mg) compared to the current standard second-line therapy ritonavir-boosted lopinavir (LPV/r) over the period of 48 weeks . The analysis presented in this report was of data from a cohort of 293 HIV positive participants (at least 18 years old). QOL was measured using the eight domains from the ACTG (Aids Clinical Trial Group) questionnaire administered by a research nurse. Explanatory variables included: treatment regimen, pill burden, adverse events, substance use, and sociodemographic characteristics. A structural equation model using significant variables from the multivariate logistic regression analysis was performed based on an *a priori* conceptual framework and separate SEM models were developed for physical functioning, cognitive and mental QOL.

Results: QOL scores were very high, particularly in the cognitive domain, where the median score was 100/100 and the IQR was 100-100. The mental QOL domain presented with the lowest scores, with a mean score of 86.8 (SD21.1). Based on the logistic regression, pill burden and age were significant risk factors for lower QOL physical functioning and cognitive scores. Age was the only risk factor that predicted low mental health scores. Based on the SEM, pill burden was a mediator in physical functioning, cognitive and mental QOL domains. Adverse events was also an additional mediator in the mental health domain, and surprisingly were correlated with higher mental QOL scores. Participants on darunavir presented with a low pill burden and lower cognitive functioning scores.

Discussion: Overall, this study shows that pill burden decreases mental, cognitive and physical functioning QOL scores. Furthermore, this study revealed the impact of co-morbidities and pill burden amongst the older HIV participants, revealing the important needs of the aging HIV

population. The study supports the evidence that Duranavir has a better side effects profile, showing that participants on this regimen reported a lower pill burden and present with better cognitive functioning scores. Lastly, females report a higher number of pill burden and adverse events as compared to males, as a result, are vulnerable in experiencing lower mental, physical and cognitive QOL.