

# Predictors of Unfavorable Tuberculosis Treatment Outcomes Among Mineworkers in Tanzania: A Case-Control Study

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**Introduction:** Miners face a huge TB burden worldwide due to excess risk of exposure to silica and dust, insufficient ventilation in mining tunnels, high prevalence of HIV, migratory nature, and lack of social support structures. Tanzania faces inadequate information on TB control interventions in the mining community, using data from other countries. This study focused on describing predictors of unfavorable TB treatment outcomes among miners to provide evidence-based information on planning TB control interventions in this community.

**Methods:** This was unmatched case-control using secondary data abstracted from the Electronic TB and Leprosy database using TB mine-workers patients recorded in 2018 was done. Ninety-eight cases (unfavorable treatment outcomes) and 921 control (favorable treatment outcomes) were included. Descriptive and logistic regression analyses were done to determine the association between exposures and TB treatment outcomes.

**Results:** The study included 1019 TB mineworkers; the mean age was  $41 \pm 14$  years. After controlling for confounders, having CXR suggestive of TB at the initiation of anti-TB treatment (aOR = 1.6, 95% CI: 1.2 – 4.5), direct observation treatment (DOT) option at the facility (aOR = 6.1, 95% CI: 2.6-14.4), age above 60 years (aOR 1.9, 95%CI 1.1-3.2) and having TB treatment at the dispensary (aOR 2, 95%CI 1.1-3.5) and hospital (aOR 2.3, 95%CI 1.4-4.0) were associated with increased risk of unfavorable treatment outcome. Living in the Southern highland zone was found to protect against adverse treatment outcomes (aOR 0.2, 95% CI: 0.1-0.5).

**Conclusions:** Having CXR suggestive of TB at the initiation of anti-TB treatment and DOT option at the facility to be predictors of unfavorable treatment outcomes among TB mine-workers patients while living in the Southern highland zone was a protective factor of getting adverse treatment outcome. Sex and HIV status were not associated with unfavorable treatment outcomes. Home-based DOT should be emphasized, and more studies should be done.

