Assessing Mental and Physical health of people with Tuberculosis in southern Africa at start of treatment and beyond

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BACKGROUND

- Tuberculosis (TB) affects psychological, physical, and social well-being.
- We determined how changes in mental and physical components of quality-of-life (QoL) affect specific patient groups.

METHODS

- We recruited and followed-up people with TB aged ≥15 years between October 2022 and August 2024 in five ongoing cohorts in Malawi, Mozambique, South Africa, Zambia, and Zimbabwe.
- At the start (baseline), at the end, and six months post TB treatment, we measured mental and physical QoL scores (SF12-MCS, SF12-PCS), depressive symptoms score (PHQ-9-S), physical fitness (6-minute walk test distance, 6MWT-D); sit-to-stand test repetitions, STST-R), and overall health, daily life and well-being (St. George's respiratory questionnaire, SGRQ-TS).
- Using multivariate imputation by chained equations, we imputed QoL outcomes and estimated their association with patient characteristics using Bayesian multivariable regression models.

Table 1. Patient's characteristics per country

Variable n (%)	All n=1,424	South Africa n=208	Malawi n=300	Mozambique n=300	Zambia n=361	Zimbabwe n=255
Median age (IQR), years	39 (30-50)	40 (33-49)	35 (28-45)	47 (34-58)	34 (28-42)	44 (34-57)
Male gender	953 (67)	129 (62)	226 (75)	168 (56)	275 (76)	155 (61)
History of prior tuberculosis	245 (17)	38 (18)	66 (22)	3 (1)	97 (27)	41 (16)
MDR tuberculosis [1]	54 (4)	6 (3)	1 (0)	0 (0)	40 (11)	7 (3)
Tuberculosis manifestation						
Pulmonary only	1397 (98)	203 (98)	279 (93)	300 (100)	360 (100)	255 (100)
Pulmonary and extrapulmonary	26 (2)	4 (2)	21 (7)	0 (0)	1 (0)	0 (0)
HIV infection						
Negative	852 (60)	77 (37)	191 (64)	217 (72)	227 (361)	140 (55)
Positive	557 (39)	121 (58)	108 (36)	80 (27)	134 (37)	114 (45)
CD4 cell count/mm^3, median (IQR)	266 (136-436)	208 (94-322)	207 (76-256)	406 (406-406)	323 (162-482)	488 (276-700)
Median HIV-RNA viral load (IQR), copies/mL	59 (59-44895)	535 (303-767)	40 (30-5835)	5714 (1185-20903)	59 (59-142553)	30 (0-40)
HIV unknown	15 (1)	10 (5)	1 (0)	3 (1)	0 (0)	1 (0)
Any current tobacco smoking	493 (58)	71 (35)	108 (72)	79 (87)	176 (59	59 (53)
Any current alcohol drinking	622 (68)	96 (47)	150 (77)	48 (76)	242 (76)	86 (63)
Any mental treatment [4]	11 (1)	2 (1)	4 (1)	0 (0)	3 (1)	2 (1)

The study emphasizes the need for integrated mental and physical health care and rehabilitation during tuberculosis treatment and beyond, especially for high-risk populations, highlighting patient-centered approaches in people with tuberculosis to address the long-term impacts on QoL.

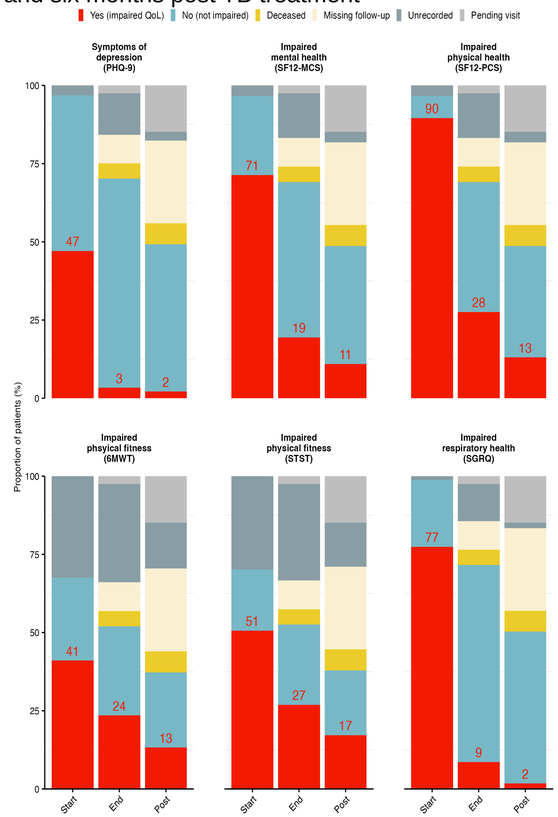
RESULTS

- We enrolled 1,424 participants; 986 (69%) completed treatment, and 629 (44%) had a post-treatment visit. Median age was 39 years (interquartile range [IQR]: 30–50), 471 (33%) were female, 557 (39%) living with HIV, 245 (17%) with a history of TB, and 493 (35%) were smokers (Table).
- At baseline, 19% of participants screened positive for depression (PHQ-9 ≥10).
- Mental and physical SF-12 scores were 44 (IQR 38–50) and 35 (IQR 27–42) out of 100, respectively, with scores below 42 and 50 suggesting impairments.
- Physical fitness in participants was lower than in healthy adults (6MWT 322, IQR 150–407 and STST 15, IQR 10–19). SGRQ-TS was 39 (IQR 27–52) out of 100, with scores above 25 suggesting impairment.
- The proportion of patients with impaired QoL decreased until end of treatment for all outcomes (Figure). Mental outcomes remained low post-treatment and physical outcomes improved further. Female sex and TB history were overall associated with lower QoL scores (86% and 88% probability). Age<30 was associated with higher QoL scores (82% probability). Living with HIV was overall associated with lower QoL scores at baseline (95% probability), but not at the end of treatment (62%) and post-treatment (24%).

CONCLUSIONS

- QoL in people with TB was often impaired at baseline, but both physical and mental outcomes improved during treatment and tended to improve only slightly thereafter.
- QoL should be monitored and integrated into the clinical management of people with TB, especially for groups more likely to have impaired mental and physical health.

Figure: Proportion of patients with impaired QoL at the end of and six months post TB treatment



ADDITIONAL KEY INFORMATION

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