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The burden and determinants of post-TB lung disease

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SUMMARY

BACKGROUND: Post-TB lung disease (PTLD) is an important but under-recognised chronic respiratory disease in high TB burden settings such as Tanzania.

METHODS: This was a cross-sectional survey of adults within 2 years of completion of TB treatment in Kilimanjaro, Tanzania. Data were collected using questionnaires (symptoms and exposures), spirometry and chest radiographs to assess outcome measures, which were correlated with daily life exposures, including environment and diet.

RESULTS: Of the 219 participants enrolled (mean age: 45 years ± 10; 193 [88%] males), 98 (45%) reported chronic respiratory symptoms; 46 (22%) had received treatment for TB two or more times; and HIV prevalence was 35 (16%). Spirometric abnormalities were observed in 146 (67%). Chest X-ray abnormalities occurred in 177 (86%). A diagnosis of PTLD was made in 200 (91%), and half had clinically relevant PTLD. The prevalence of mMRC ≥Grade 3 chronic bronchitis and dyspnoea was respectively 11% and 26%. Older age, multiple episodes of TB and poverty indicators were linked with clinically relevant PTLD.

CONCLUSIONS: We found a substantial burden of PTLD in adults who had recently completed TB treatment in Tanzania. There is a pressing need to identify effective approaches for both the prevention and management of this disease.

KEY WORDS: post-tuberculosis; spirometry; mixed-pattern; radiographs; obstruction

Although appropriate pulmonary TB (PTB) treatment can achieve microbial cure, the burden of ill health after TB, including post-TB lung disease (PTLD) is now increasingly recognised.[1] People with PTLD have reduced health-related quality of life and reduced exercise tolerance.[2] Even the successful completion of PTB treatment confers a 3.76 times higher risk of death than in the general population.[3] PTLD contributes to the burden of chronic respiratory disease (CRD) in children and adults in high TB settings; in sub-Saharan Africa, there is a substantial burden of CRD, with an estimated 4.5–5.8% of the population affected.[4,5]

Health systems in sub-Saharan Africa treat and cure 2–2.5 million people with PTB every year.[6] Typically, there is no assessment of health and wellbeing beyond a narrow classification of "treatment outcome", and no services targeted at long-term post-TB health needs.[7] A poor understanding of the health and wellbeing needs of this patient group contributes to this lack of health service provision.[8]

In Tanzania, 60,000–75,000 people have been treated for PTB annually in recent decades,[9] with high short-term treatment success. However, comorbidities are frequent among PTB patients: 25–40% have human immunodeficiency virus (HIV) co-infection and 16% suffer from diabetes.[10,11] PTB also directly contributes to poor lung function due to parenchymal destruction, interstitial lung disease, loss of alveolar surfaces and primary vascular processes, culminating in patients with complex medical needs.[12,13] Additional insults, such as tobacco smoking, household and outdoor air pollution, and exposure to dust, gases or fumes independently cause CRD.[14] It is not clear how these CRD risk factors interact with or alter the severity of PTLD.

In the present study, we investigated the burden

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and severity of PTLD, and the relationship between PTLD and other potential risk factors for poor lung health.

METHODS

Setting

The Kibong'oto Infectious Diseases Hospital (KIDH) in Kilimanjaro Region, Tanzania, is a national referral hospital specialising in TB/multidrug-resistant TB (MDR-TB).[15] The hospital receives more than 30,000 patients annually, of whom around 1,000 are diagnosed with TB/MDR-TB and 4,500 present with respiratory diseases other than TB.[16]

Design

We performed a cross-sectional study of adults who had been treated at KIDH for at least one episode of bacteriologically positive drug-susceptible PTB in the past 2 years. Exclusion criteria were active PTB as assessed by the standard national algorithm;[17] other serious active health conditions such as malignancy, dementia, pregnancy; and contraindication or inability to do spirometry. All participants provided written informed consent.

Recruitment

Individuals were identified either from those seeking care at the outpatient department, or through the health facility TB unit register where phone contacts were recorded. Participants were sequentially identified and invited to take part. Those refusing or untraceable by phone were not included.

Sample size

A total sample size of 224 was calculated to estimate the prevalence of PTLD diagnosed based on spirometric abnormalities with 95% confidence intervals (CIs) and a desired precision of 2.5% (i.e., ±2.5%), assuming a prevalence of 9%.[18]

Data collection and measurements

A team of clinicians and nurses with knowledge and experience of at least 2 years on research and lung disease management received a 2-day protocol training prior to starting participants enrolment. Clinicians and nurses conducted interviews of participants and documented the responses using standardised data collection questionnaires designed by the International Multidisciplinary Programme to Address Lung Health and TB in Africa (IMPALA) network.[19] The questionnaires collected data on demographics, symptoms, history of episodes of TB, in-house and or occupational exposures, cigarette smoking status and nutrition (https://github.com/jipp3r/IMPALA_QuestionSet).[19] Risk factors for non-TB CRD were sought to contextualise the data, and included a first-degree relative with asthma, history of smoking >10 pack years and relevant infections such as documented previous pertussis, measles or adenovirus requiring hospitalisation, recurrent (≥2 episodes) non-specified childhood respiratory infections necessitating hospitalisation or HIV co-infection.

Spirometric data were collected using the EasyOne® Spirometer (ndd, Zurich, Switzerland) according to American Thoracic Society and European Respiratory Society (ATS/ERS) standards.[20] Research staff explained and demonstrated the procedure to the research participant. Measurements were carried out as described elsewhere, and included at least three acceptable and repeatable forced vital capacity (FVC) manoeuvres performed both before and after inhaled bronchodilator (salbutamol 200 μg via metered-dose inhaler).[21] Clinical data included forced expiratory volume in 1 sec (FEV_1), FVC and the ratio (FEV_1/FVC). The 2012 Global Lung Function Initiative reference equations adjusted for non-Caucasian patients were used.[22] The best values for FVC and for FEV_1 were classified and reported.[21] Severity of FEV_1 reductions were described using ATS/ERS classifications of FEV_1 percentage of predicted as follows: mild (70–79%), moderate (60–69%), moderate-severe (50–59%), severe (35–49%) and very severe (<35%).[21] Chest X-ray was performed and reported by a radiologist.

Definition of post-TB lung disease

PTLD is defined as evidence of chronic respiratory abnormality, with or without symptoms, attributable at least in part to previous PTB.[7] Clinically relevant PTLD was defined as the presence of respiratory symptoms that were most likely attributable to previous PTB, and not better explained by any other respiratory condition (e.g., asthma or chronic obstructive pulmonary disease) preceding PTB diagnosis. The respiratory symptoms of interest included 1) cough on most days for 3 months of the year in 2 consecutive years (chronic bronchitis), or cough on most days since completion of TB treatment; 2) dyspnoea using the modified Medical Research Council (mMRC) dyspnoea scale;[23] and 3) wheeze of one or more episodes in the last year.

Bias, data management and quality control

All the questionnaires were reviewed for completeness and accuracy. Spirometry quality assurance included training and competence assessment of operators, daily calibration check with a 3L syringe and assessment of spirograms for acceptability, reproducibility and repeatability. After review by an experienced assessor, the best acceptable values were selected for analysis. Data were double-entered in MS Access@2018 (Microsoft, Redmond, WA, USA) by independent data officers, and inconsistencies were resolved by inspection of source documents.

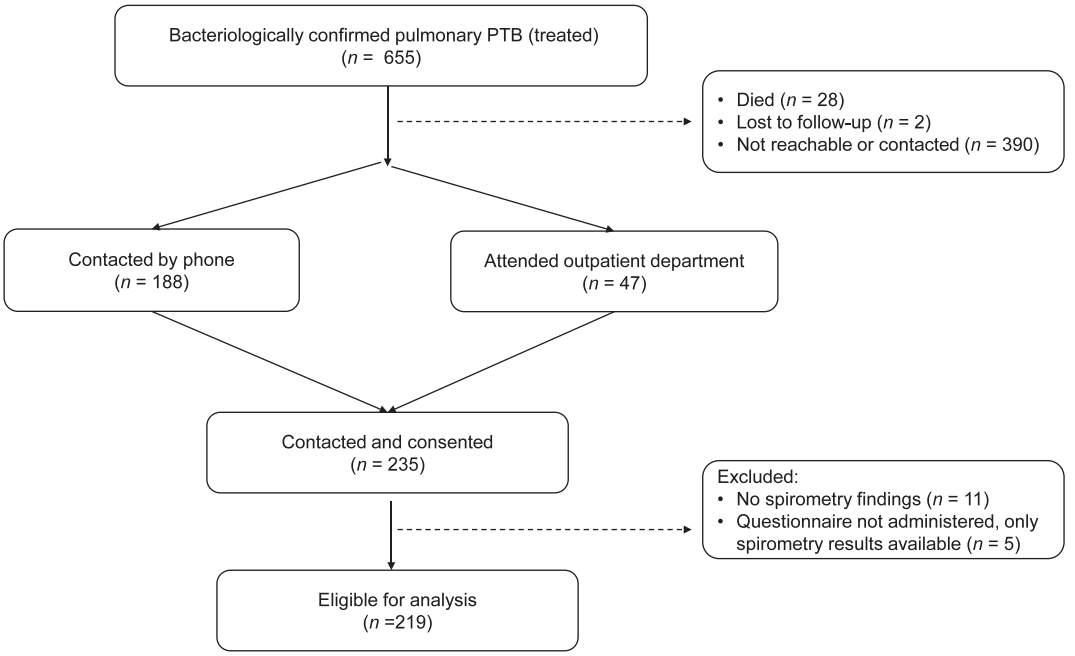

Figure 1 Recruitment process of study participants. PTB = pulmonary TB.

Data analysis and statistical methods

PTLD outcomes, daily life exposures and important confounding variables were described in terms of frequency (percentage) and mean with 95% CIs or median with interquartile ranges (IQRs), as appropriate. Association between PTLD outcomes and variables was estimated using one-way analysis of variance or χ^2. Odds ratios (ORs) were used to estimate the association between PTLD and daily life exposures. Univariable and multivariable logistic regression models were used to estimate associations between potential risk factors and symptomatic PTLD, presented as ORs with 95% CIs. Multivariable models were built by using stepwise regression to select variables. Missing data were treated using listwise deletion. Variables were retained if statistically significant ($P < 0.05$).

Ethical consideration

The study was approved by the KIDH, Kilimanjaro, Tanzania, the National Ethical Review Boards in Tanzania (reference no. NIMR/HQ/R.8a/Vol. IX/2886) and the Liverpool School of Tropical Medicine, Liverpool, UK (ref 18-047).

RESULTS

Demographics and clinical characteristics

Of the 655 participants treated for bacteriologically positive PTB during the preceding 2 years, 235 (36%) could be contacted for inclusion in the study between October 2018 through April 2020. Of these, 16 (7%) were excluded and 219 participated and provided data for analysis (Figure 1). Demographics data such as age, sex, medical history such as HIV status, episodes of TB treatment and various environmental exposures are given in Table 1. None of the participants had a history of whooping cough or measles. Spirometry abnormalities occurred in 146 (67%), but all patients with abnormality had obstruction and 88 (60%) did not respond to bronchodilators. Most had superimposed low FVC (n =118, 81%), followed by those with only obstructive pattern ($n = 28$, 19%); none had only a restrictive pattern of disease. Severity of abnormal spirometry of the FEV_1% predicted in participants were ranked mild ($n = 37$, 25%), moderate ($n = 41$, 28%), moderate–severe ($n = 31$, 21%), severe ($n = 30$, 21%) and very severe ($n = 7$, 5%).

Chest X-ray abnormalities were observed in 177 (86%), most of whom had bilateral changes ($n = 133$, 75%). Chronic respiratory symptoms were reported by 98 (45%) participants. Only 96 (45%) smoked tobacco, and 46 (22) smoked cannabis. Approximately half the participants had a regular salaried job (n = 123, 56%), while 142 (65%) had earned additional money or produced goods for exchange (Table 1).

Chronic respiratory symptoms

Cough, dyspnoea and wheeze occurred in respectively 60 (27%), 55 (25%) and 43 (20%) participants. These clinical features commonly co-existed (Figure 2A). Of those reporting cough, 34 (57%) were affected on most days since treatment completion, and 25 (42%) met the definition of chronic bronchitis. The median duration of cough was 1.75 years (IQR 1–3). Cough was associated with phlegm

Table 1 Demographic and clinical characteristics of patients with and without symptomatic PTLD in Tanzania ($n = 219$)*

	($n = 219$) *n* (%)	Symptomatic PTLD ($n = 92$) *n* (%)	No symptoms ($n = 127$) *n* (%)	*P* value
Demographics				
Age, years, mean ± SD	45 ± 10	47 ± 9	43 ± 10	0.004
Male sex	193 (88)	83 (43)	110 (57)	0.547
HIV infection	35 (16)	11 (31)	24 (69)	0.231
TB episodes*				
Once	167 (79)	58 (35)	109 (65)	0.001
Twice	43 (20)	27 (63)	16 (37)	
More than twice	3 (1)	2 (67)	1(33)	
Smoking*				
Tobacco	103 (47)	55 (53)	48 (47)	0.002
Cannabis	46 (22)	23 (50)	23 (50)	0.193
Waterpipe	3 (1)	3 (100)	0 (0)	0.065
Source of energy				
Cooking†				
1–2 stoves	155 (79)	59 (38)	96 (62)	0.041
3–4 stoves	40 (21)	23 (58)	17 (42)	
Main user of the cooker (cooker used on most days)	60 (27)	18 (28)	42 (72)	0.039
Number of cooking years, median [IQR]	10 [3–20]	7 [4–14]	10 [3–20]	0.967
House has heating	41 (24)	8 (20)	33 (80)	0.001
House has electric lighting	202 (96)	85 (42)	117 (58)	0.086
Ventilation in cooking area				
Closed room	2 (1)	0 (0)	2 (100)	0.899
Room with eaves spaces	5 (2.5)	2 (40)	3 (60)	
Room with open windows/doors	203 (96)	84 (41)	119 (59)	
Room with <4 walls	1 (0.5)	0 (0)	1 (100)	
Life exposure				
Second-hand tobacco smoke in household	40 (19)	19 (47)	21(53)	0.45
Second-hand tobacco smoke in workplace	105 (49)	48 (46)	57 (54)	0.209
Has domestic animals	150 (70)	63 (42)	87 (58)	0.739
Place of residence				
Town or city	42 (20)	13 (31)	29 (69)	0.33
Sub-urban	108 (50)	46 (43)	62 (57)	
Rural	65 (30)	29 (45)	36 (55)	
Time lived in town/city, years, median [IQR]	12 [6–20]	16 [8–24]	10 [6–18]	0.024
Time lived in village, years, median [IQR]	20 [13–29]	19 [14–32]	20 [10–28]	0.669
Traffic exposure				
Distance from home to major road (with lorries or regular buses/minibuses), m				
<100	93 (43)	32 (34)	61(66)	0.188
100–500	57 (27)	28 (49)	29 (51)	
>500	65 (30)	28 (43)	37 (57)	
Traffic density on closest major road				
>10 per min	60 (28)	26 (43)	34 (57)	0.101
1–10 per min	95 (45)	31 (33)	64 (67)	
1 every 1–10 min	29 (14)	16 (55)	13 (45)	
<1 every 10 min	28 (13)	14 (50)	14 (50)	
Social history				
Drinks alcohol	125 (59)	59 (47)	66 (53)	0.046
Beer, bottles/week, median [IQR]	14 [3–21]	14 [5–21]	10 [2–21]	0.485
Wine, glasses/week, median [IQR]	7 [2–25]	2 [1–7]	17 [4–24]	0.378
Spirits, shots/week, median [IQR]	15 [5–17]	16 [7–45]	16 [7–45]	0.285
Local brew, bottles/week, median [IQR]	10 [4–20]	13 [5–21]	12 [4–20]	0.739
Regular paid work	123 (57)	38 (31)	85 (69)	0.001
Other work or producing goods for exchange	142 (66)	49 (35)	93 (65)	0.009

* 6 participants had missing responses.
† 24 participants had no history of cooking.
PTLD = pulmonary TB lung disease; SD = standard deviation; IQR = interquartile range.

production in 53 (95%), with 38 (72%) reporting phlegm on most days and 22 (42%) worse when lying in a certain position. Distribution of 55 participants with dyspnoea according to Grades I, II, III and IV of the mMRC scale was respectively 10 (18%), 9 (16%), 15 (27%) and 21(39%). Of participants reporting wheeze, 16 (39%) experienced severe attacks (enough to limit speech to only one or two words at a time between breaths). The median number of wheezing attacks, coupled with sleep disturbances was respectively 3 (IQR 2–6) and 3 (IQR 2–4).

Participants meeting the PTLD definition

Overall, most participants met the definition for PTLD ($n = 200$, 91%); 92 (42%) had associated respiratory symptoms (Figure 2B).

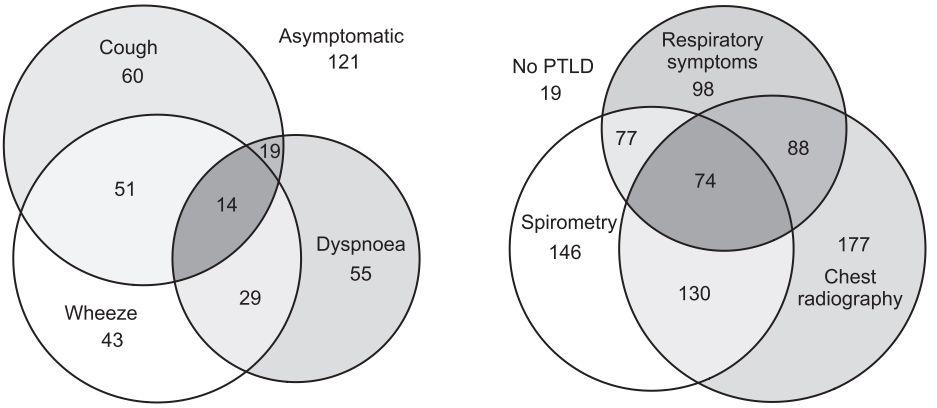

Figure 2 **A)** Proportional area diagram showing reported clinical symptoms of participants. **B)** Proportional area diagram showing distribution of post-TB according to respiratory symptoms, spirometry and chest radiograph results. PTLD = pulmonary TB lung disease.

Exposures to potential risk factors

The median number of cigarettes smoked per day was 8 (IQR 4–20), with a median age of starting and stopping smoking of 20 years (IQR 17–25) and 38 years (IQR 36–40) respectively. Tobacco smoking increased symptomatic presentation of PTLD in 55 (53%) compared to non-smokers in 37 (32%; $P = 0.002$). Individuals cooking with 3–4 stoves compared to 1–2 stoves had increased symptomatic PTLD (respectively $n = 23$, 58% vs. $n = 59$, 38%; $P = 0.041$). Individuals who did not heat their houses at any time developed more symptomatic PTLD than those who did ($n = 67$, 52% vs. $n = 8$, 20%; $P = 0.001$). Symptomatic PTLD was associated with living many years in urban areas (median 16 years, IQR 8–24 vs. 10 years, IQR 6–18) in the asymptomatic group, regardless of PTLD status ($P = 0.024$); alcohol abuse was also more likely to be associated with PTLD symptoms compared to those who did not consume alcohol ($n = 59$, 47% vs. $n = 28$, 33%; $P = 0.046$). We found that various ambient air pollution exposures such as methods of household lighting; modes of household ventilation; secondary cigarette smoking; urban, rural or traffic exposures were not significantly associated with PTLD (Table 1).

Forty-two (19%) participants had inadequate food to have normal meals. Five (100%) individuals with an average of 1 meal/day, 27 (55%) with at least an average of 2 meals/day and 55 (35%) with at least three meals/day were symptomatic ($P = 0.001$). Food insecurity, eating cereals, consuming oily food and fruit juice intake were strongly associated with symptomatic PTLD (Figure 3) Intake of other food types and varieties were not correlated with PTLD (Supplementary Data I)

Clinically relevant, symptomatic PTLDs were associated with advanced age, history of previous multiple TB retreatment and night sweats, whereas having a paid job was protective. Sex and HIV infection were not associated with symptomatic PTLD (Table 2A). Univariate analysis of diet intake showed that inadequate food and alcohol consumption significantly increased the odds of symptomatic PTLD, while intake of cereals, potatoes, pulses, fruits, fruit juice and bread at least once per week were negatively associated with PTLD (Table 2A).

Logistic regression models for predicting clinically relevant PTLD

In univariable logistic regression models, age >35 years, TB retreatment, night sweats, food insecurity, alcohol intake and tobacco smoking were associated with an increased odd of symptomatic PTLD, while having a paid job, being the main cooker user, heating the house at any time in a year, eating at least 2 meals per day, particularly meals including bread, fruits or juices were associated with reduced odds of symptomatic PTLD (Table 2A).

On multivariable logistic regression, age >35 years, TB retreatment, night sweats, tobacco smoking, and eating cereals and oily food more than once a week were associated with increased odds of symptomatic PTLD. Eating fruits and drinking juice at least once a week were associated with reduced odds of developing symptomatic PTLD (Table 2B).

DISCUSSION

PTLD was identified in the majority (91%) of Tanzanian adults cured of PTB in our study, approximately half of whom had clinically relevant disease. Chronic cough was the most common symptom, which often overlapped with wheeze or moderate to severe dyspnoea. These generally occurred in individuals with no prior history of CRD, suggesting PTB was the main trigger of these symptoms and impairment of lung function, as previously described.[24,25] We identified a number of factors associated with an increased risk of having clinically relevant PTLD, including older age, multiple courses of TB treatment and several poverty indicators.[26]

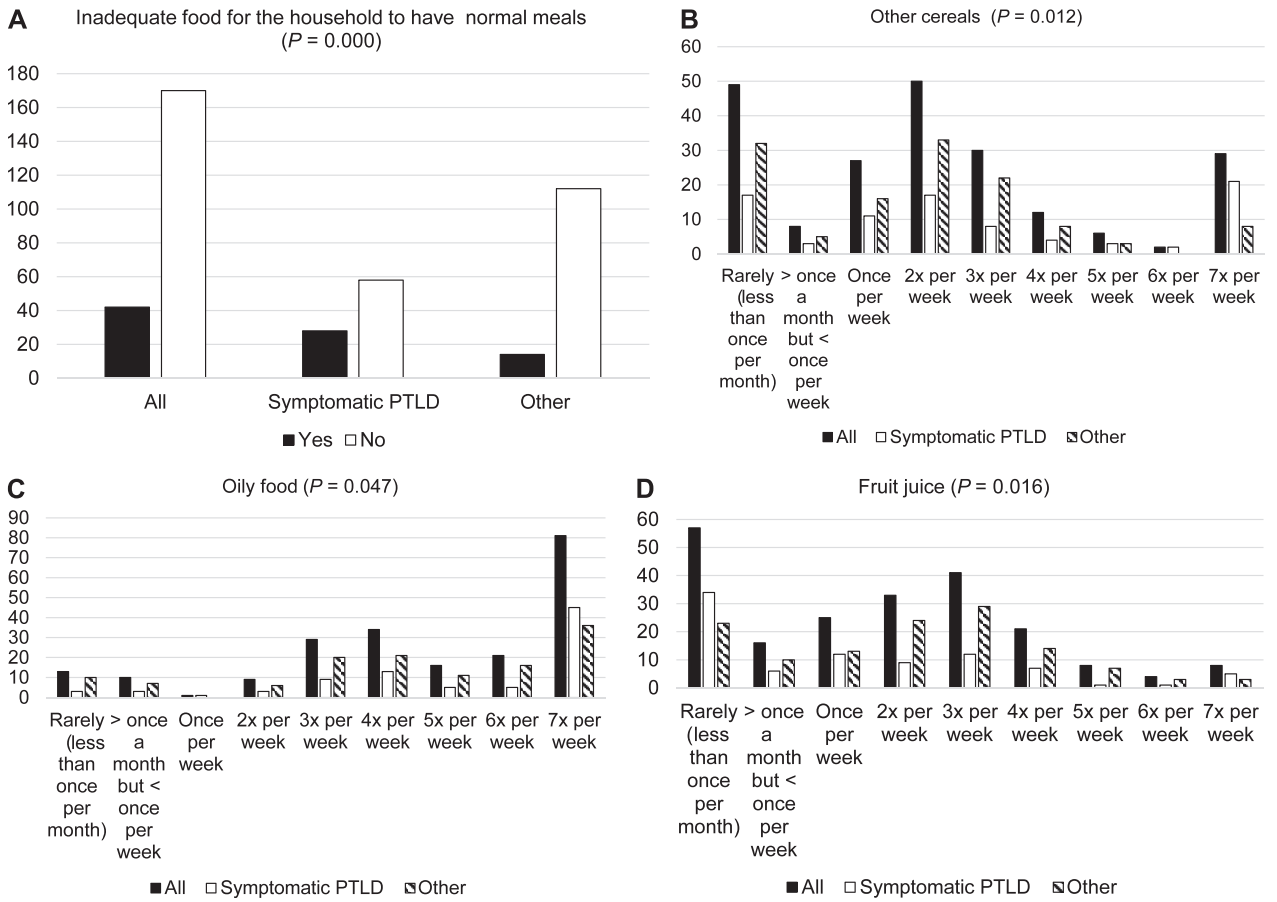

Figure 3 Association between nutrition and PTLD. Each panel shows the frequency of food/diet intake. PTLD = pulmonary TB lung disease.

Table 2A) Estimates of association between individual risk factors for symptomatic PTLD (n = 92) by univariable logistic regression

Predictor variables	OR (95% CI)	P value
Male sex	1.4 (0.6–3.5)	0.418
HIV-positive	0.6 (0.3–1.2)	0.170
Age, years		
18–34	Reference	
35–50	6.7 (2.2–29.1)	0.003
>50	6.3 (1.9–28.6)	0.006
More than 1 episode of TB	3.5 (1.9–6.9)	<0.001
Main cooker user	0.5 (0.3–0.9)	0.029
Heating system in the house	0.3 (0.1–0.5)	0.001
Electricity available	1.5 (0.5–4.9)	0.483
Tobacco smokers	2.4 (1.4–4.3)	0.001
Cannabis smokers	1.5 (0.8–2.9)	0.218
Having a paid job	0.4 (0.2–0.7)	0.001
Night sweat	3.6 (1.4–10.6)	0.012
Eating bread more than once a week	0.4 (0.2–0.7)	0.001
Eating >2 meals per day	0.4 (0.2–0.7)	0.001
Inadequate food	4.3 (2.2–8.9)	<0.001
Eating cereals more than once a week	1.2 (0.7–2.3)	0.498
Eating potatoes more than once a week	0.6 (0.3–1.0)	0.050
Eating pulses more than once a week	1.0 (0.6–1.9)	0.898
Eating porridge more than once a week	1.3 (0.8–2.4)	0.312
Eating fruits more than once a week	0.3 (0.1–0.8)	0.030
Taking juice more than once a week	0.4 (0.2–0.8)	0.004
Eating oily food more than once a week	1.9 (0.8–5.0)	0.182
Eating sweets more than once a week	0.7 (0.7–1.7)	0.459
Alcohol intake	1.8 (1.0–3.2)	0.040

Table 2B) Estimates of adjusted associations between risk factors for symptomatic PTLD ($n = 92$) in multivariable logistic regression where variables were selected by stepwise regression

Predictor variables	aOR (95% CI)	*P* value
Male sex	0.6 (0.1–2.5)	0.468
HIV-positive	1.1 (0.4–2.9)	0.872
Age, years		
18–34	Reference	
35–50	7.6 (2.0–43.2)	0.009
>50	5.9 (1.3–36.7)	0.0334
More than 1 episode of TB	2.4 (1.1–5.6)	0.040
Main cooker users	0.5 (0.2–1.3)	0.162
Heating system in the house	0.4 (0.2–1.0)	0.049
Tobacco smoking	2.0 (0.9–4.4)	0.079
Cannabis smokers	0.8 (0.3–2.0)	0.622
Having a paid job	0.5 (0.2–1.2)	0.117
Night sweats	3.5 (1.0–13.9)	0.059
Inadequate food	2.2 (0.8–6.4)	0.124
Eating >2 meals per day	0.5 (0.2–1.2)	0.121
Having cereals more than once a week	2.7 (1.2–6.6)	0.020
Having fruits more than once a week	0.1 (0.0–0.5)	0.012
Having greasy food more than once a week	8.7 (2.2–46.0)	0.004
Taking juice more than once a week	0.6 (0.2–1.3)	0.160
Having sweets more than once a week	0.8 (0.6–1.0)	0.121
Alcohol intake	1.4 (0.6–2.9)	0.426

Multiple variables were included in the model, including sex, HIV status, tobacco smoking, age group, TB episodes, paid job, having porridge, eating cereals, fruits, oily food, fruits, pulses, alcohol, night sweats, weight changes, cannabis smoking and staying with a cigarette smoker at a working place.
PTLD = pulmonary TB lung disease; OR = odds ratio; CI = confidence interval; aOR = adjusted OR.

Our findings of a high burden of chronic cough and dyspnoea (mMRC Grade 2, 3 and 4) are consistent with those from recent studies from South Africa; nevertheless, all of the South African population studied had a history of smoking, with respectively 17% and 42% presenting with phlegm production and wheeze.[27] To note, we observed that HIV did not influence the clinical presentation of our participants and, this is in contrast with findings from Malawi, which reports that HIV-negative individuals presented with more symptoms of cough and breathlessness.[28] The population studied included those treated for PTB within 2 years; the prevalence of mMRC (Grades 3 and 4) dyspnoea, chronic bronchitis and wheeze was very high, at respectively 26%, 11%, and 8%. This is a considerable proportion of individuals with poor health conditions requiring medical interventions, as the risk of death in, for example, those with ≥Grade 3 dyspnoea within 5 years is three-fold, and up to 2-fold in those with chronic bronchitis within a decade.[29,30]

Although half of individuals were asymptomatic, respectively 27%, 11% and 56% of this sub-group had anatomical lesions, impaired lung function and both. The effect of these abnormalities on long-term wellbeing is not clear; therefore, it is important to conduct longitudinal studies to inform policy actions and guidance.[31]

This study was adequately powered to estimate the burden and severity of chronic respiratory symptoms in individuals who had recently completed TB treatment. The questionnaires administered (https://github.com/jipp3r/IMPALA_QuestionSet)[19] captured a wide range of exposure parameters and provided insight into factors that influence symptomatic PTLD. For example, various exposure types such as smoking tobacco, cannabis and water pipe or living in a town, city or village were included to explore exposure to different noxious agents and their effect on clinically relevant PTLD. While different types of smoking material were captured to minimise bias and take into account community preferences, living in towns, cities or villages reflected the varying levels of exposure to air pollutions, with cities carrying the highest burden of ambient air pollution, followed by towns and villages. Likewise, several types of foods were included in order to understand their effect on PTLD.

The study had several limitations: the cross-sectional design may have led to an underestimation of the burden and predictive factors of PTLD. As symptomatic PTLD population were recruited from the outpatient department, there may have been selection bias, and the selection of participants who reached the evaluation stage may have led to survival bias. This may also explain why we had a large number of patients with obstructive lung impairment. It is also possible that interviewees had recall bias. Besides, as CXR is not adequate to detect all abnormalities with physiological problems, parenchymal and/or parietal damage of the lungs may have been underestimated.

In conclusion, we found that the burden of PTLD in Tanzanian adults who had been cured of PTB was high. Taken together with other recent studies from sub-Saharan Africa, it is clear that this is an important and lifelong disease for many after TB.[32] This also indicates a major unmet need, as there is no pathway

for the clinical management of PTLD in most TB-endemic countries, resulting in multiple hospitalisations and (unnecessary) re-treatment for TB.[33,34] Further research and evaluation of potential approaches to the ongoing care of people with PTLD, including interventions such as pulmonary rehabilitation and smoking cessation, are therefore warranted.[35] There is also a real need to address psychosocial and socio-economic issues, given the strong links between PTLD and poverty.[36]

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RÉSUMÉ

CONTEXTE : La maladie pulmonaire post-TB (PTLD) est une maladie respiratoire chronique importante mais sous-identifiée dans les régions à forte incidence de TB comme la Tanzanie.

MÉTHODES : Ceci est étude transversale réalisée auprès d'adultes dans les 2 années suivant la fin de leur traitement antituberculeux, au Kilimandjaro, Tanzanie. Les données ont été recueillies par questionnaires (symptômes et expositions), spirométrie et radiographies pulmonaires. Elles ont été utilisées pour évaluer les mesures de résultats et ont été corrélées avec les expositions quotidiennes, dont l'environnement et l'alimentation.

RÉSULTATS : Nous avons inclus 219 participants (âge moyen de 45 ans ± 10 ans ; 193 [88%] hommes). Des symptômes respiratoires chroniques ont été rapportés par 98 (45%) participants ; 46 (22%) avaient reçu un traitement antituberculeux au moins deux fois ; la prévalence du VIH était de 35 (16%). Des anomalies ont été observées par spirométrie chez 146 (67%) patients, et des anomalies à la radiographie pulmonaire chez 177 (86%) patients. Un diagnostic de PTLD a été posé chez 200 (91%) patients, dont la moitié avait une PTLD cliniquement pertinente. La prévalence des bronchites chroniques et des dyspnées (échelle modifiée de Medical Research Council $\geq$ grade 3) était de 11% et 26%, respectivement. Un âge avancé, de multiples épisodes de TB et certains indicateurs de pauvreté étaient liés à une PTLD cliniquement pertinente.

CONCLUSIONS : Nous avons observé un poids sanitaire élevé dû à la PTLD chez les adultes ayant récemment terminé leur traitement antituberculeux en Tanzanie. Des approches efficaces doivent être identifiées tant pour la prévention que pour la prise en charge de cette maladie.