RESEARCH

Knowledge, attitudes and practices towards tuberculosis: results of a community-based survey in the Karamoja subregion, North Eastern Uganda

William Kasozi[1,2*], Edson Mwebesa[2,3], Stella Zawedde-Muyanja[1,2], Tadeo Nsubuga[1,2], Joseph Musaazi[2],
Alfred Etwom[1,2], James Lemukol[4]

Abstract

Background The Karamoja subregion in north-eastern Uganda has very high Tuberculosis (TB)case noti cation rates and, until recently, had suboptimal treatment completion rates among patients diagnosed with TB. We evaluated community knowledge, attitudes and practices towards Tuberculosis in order to identify barriers to TB control in this region.

Methods From September to October 2022, we conducted a community-based survey higher TB knowledge scores were Karamoja subregion. We collected data on TB knowledge, attitudes, and practices using a structured electronic questionnaire. We generated knowledge, attitude and practice scores. We used a survey-weighted zero-truncated

associated with being employed (adjusted prevalence ratio, aPR = 1.22, 95% CI 1.04–1.42, *p* = 0.01) while being a wife in a household was associated with lower TB knowledge (aPR = 0.90, 95% CI 0.82–0.99, *p* = 0.03). Being 25–34 years old was associated with a positive attitude towards TB (PR = 1.06, 1.01–1.11, *p* = 0.01). Over 85% of respondents would go to the health facility immediately if they had TB signs and symptoms. Almost all respondents (98.6%) would start TB treatment immediately if diagnosed with the disease.

Conclusion More than two thirds of patients had good knowledge and practices towards TB which can be leveraged to improve uptake of TB control interventions in the region. Additional interventions to improve TB knowledge and practice should focus on speci c segments within the communities e.g., older women in the households.

*Correspondence:
William Kasozi
wkasozi@idi.co.ug

Full list of author information is available at the end of the article

Background

Tuberculosis (TB) remains a major cause of morbidity and mortality worldwide. In 2021, an estimated 10 million people fell ill with tuberculosis. In the same year, 1.6 million deaths from TB were recorded [1]. e burden of TB and other infectious diseases is disproportionately distributed across regions, with Southeast Asia and sub-Saharan Africa having the largest share of the global TB burden [2]. Even within countries, the burden of TB disproportionately a ects certain vulnerable regions and populations. e Karamoja sub-region in North-eastern Uganda is one such region. e region is home to 1.2 million people but noti es > 5500 TB cases annually translating into a noti cation rate of approximately 450 per 100,000 higher than the national average of 213/100,000 population. e high TB burden in this region is driven by an intersection of overcrowding, poor nutrition, and poorly ventilated housing [3, 4]. e Karamoja subregion is inhabited by predominantly pastoralist communities and has the lowest human development indicators in the country [5]. In addition, seasonal migrations contribute signi cantly to the non-completion of TB treatment, resulting in further spread of the disease [6].

e Program for Accelerated Control of TB in Karamoja (PACT-Karamoja) is a ve-year funded project funded by the Unites States Agency for International Development that supports TB control activities in the Karamoja subregion [7]. e project focuses on commu

Kasozi *et al. BMC Public Health*   (2024) 24:2489

Page 4 of 13

of TB treatment that respondents would start.   e total possible score was 16. Similar to knowledge and attitude scores, a score

_____

_____   _____

Kasozi *et al. BMC Public Health*   (2024) 24:2489

Page 6 of 13

Composite practice scores

On analysis of composite practice scores, children in households were more likely to have good practices towards TB disease (aPR = 2.44, 95% CI 0.97–6.13, p = 0.05) whereas respondents   60 years (aPR = 0.58, 95% CI 0.39–0.86, p < 0.01) and females (aPR = 0.54, 95% CI 0.32–0.91, p = 0.02) were less likely to have good practices towards TB (Table 7).

Preferred modes of receiving TB education

 e majority of respondents (59.3%) preferred to receive their TB information through community outreaches

Table 4 Attitudes towards TB

Variables

to disclose a TB diagnosis to members of one's community. High TB-associated stigma rates have also been among other communities in Ethiopia [13], the Gambia [26], and Uganda [27]. TB stigma makes patients reluctant to seek TB care services, receive a TB diagnosis, and initiate treatment for TB [28]. TB stigma also isolates patients with TB, making adherence to treatment challenging [29].

ree out of four respondents mentioned that they could prevent TB by either taking TB medicines (TB preventive therapy) or covering their mouth when they coughed.   is knowledge could be leverage to improve uptake of TB preventive therapy.

Study strengths and limitations

Our study included the major societal groups in the Karamoja subregion and represented women and youth often marginalized in this community. Our ndings are, therefore, generalizable to this subregion. However, our

Kasozi *et al. BMC Public Health*   (2024) 24:2489

Page 10 of 13

Table 6 Respondents' practices associated with TB

Variables	All Districts % (95% CI) (n = 1,799) [i]	Agriculturalist % (95% CI) N = 452 (25.1%)	Pastoralists % (95% CI) N = 982 (54.6%)	Agro-pastoralists % (95% CI) N = 365 (20.3%)	p-value
If you had the following symptoms, cough for 2 weeks or more, night sweats, fever and some weight loss, at what point would you go to the health facility?					
I will go immediately.	85.8 (80.8, 89.6)	85.4 (77.4, 91.0)	90.0 (86.0, 92.9)	76.2 (71.9, 80.0)	< 0.01
I would not go if symptoms don't get worse.	5.9 (2.6, 12.8)	3.7 (2.5, 5.4)	2.5 (0.9, 6.6)	15.4 (8.6, 26.2)	
When alternative treatment does not work.	2.3 (1.2, 4.5)	2.4 (0.9, 5.8)	3.1 (1.6, 5.9)	0.5 (0.1, 2.2)	
When symptoms last for 3–4 weeks.	4.6 (2.7, 8.0)	6.0 (2.9, 12.1)	3.5 (1.6, 7.6)	6.3 (2.1, 17.6)	
I will not go at all.	0.5 (0.2, 1.2)	0.6 (0.1, 3.8)	0.4 (0.1, 1.2)	0.7 (0.1, 3.9)	
I will go If a cultural leader tells me to	0.8 (0.4, 1.9)	1.9 (0.5, 7.4)	0.5 (0.2, 1.7)	0.8 (0.2, 3.0)	
Why would you not want to go to any healthcare facility, if you had the symptoms?					

Kasozi *et al. BMC Public Health*   (2024) 24:2489

Page 11 of 13

Table 7 A survey weighted complementary log-log model for individual-level factors associated with good practices towards TB disease

Variables	Unadjusted OR (95% CI)	*P*-Value	Adjusted OR (95% CI)	*P*-Value
District Type				
Agriculturalists	Reference			
Pastoralists	1.15 (0.87, 1.54)	0.33		
Agro-Pastoralists	0.78 (0.52, 1.17)	0.23		
Age				
18–24	Reference		Reference	
25–34	1.04 (0.79, 1.37)	0.78	1.33 (0.86, 2.06)	0.19
35–44	0.88 (0.65, 1.19)	0.39	1.12 (0.71, 1.77)	0.62
45–59	0.64 (0.46, 0.89)	**< 0.01**	0.85 (0.54, 1.32)	0.46
60 and above	0.40 (0.22, 0.72)	**< 0.01**	0.58 (0.39, 0.86)	**< 0.01**
Sex				
Male	Reference		Reference	
Female	0.72 (0.51, 1.01)	**0.05**	0.54 (0.32, 0.91)	**0.02**
Education				

Conclusion

More than two thirds of patients had good knowledge and practices towards TB which can be leveraged to improve uptake of TB control interventions in the region. Additional interventions to improve TB knowledge and practice should focus on community education on cause and transmission of TB and should focus on specific segments within the communities e.g., older women in the households.

Kasozi *et al. BMC Public Health*   (2024) 24:2489

Page 12 of 13

Recommendations

To increase the uptake of TB healthcare services in the region, increased focus should be placed on community sensitization on TB's cause and transmission.   is should be prioritized, especially for women and people in remote communities. Community sensitization should be carried out through community outreaches or health-facility-based health talks since these are the most preferred means of health education. In addition, evidence-based interventions to reduce TB-related stigma, e.g., community education and forming community-based support groups for patients and their families should be implemented.

Abbreviations

TB   Tuberculosis
WHO

16. Castelnuovo B. Review of compliance to anti tuberculosis treatment and risk factors for defaulting treatment in Sub Saharan Africa. Afr Health Sci, 2010. 10(4).

17. Kankya C, Mugisha A, Muwonge A et al. *Myths, perceptions knowledge, attitudes, and practices (KAP) linked to mycobacterial infection management among the pastoralist communities of Uganda.* 2011.

18. Balogun MR, Sekoni AO, Meloni ST et al. Predictors of Tuberculosis knowledge, attitudes and practices in urban slums in Nigeria: a cross-sectional study. Pan Afr Med J, 32 2019.

19. Kazoora H, Majalija S, Kiwanuka N, et al. Knowledge, attitudes and practices regarding risk to human infection due to Mycobacterium bovis among cattle farming communities in western Uganda. Zoonoses Public Health. 2016;63(8):616–23.

20. Legesse M, Ameni G, Mamo G, et al. Knowledge and perception of pulmonary tuberculosis in pastoral communities in the middle and Lower Awash Valley of Afar region, Ethiopia. BMC Public Health. 2010;10(1):187.

21. Cramm JM, Finken ügel HJ, Møller V, et al. TB treatment initiation and adherence in a South African community in uenced more by perceptions than by knowledge of tuberculosis. BMC Public Health. 2010;10(1):1–8.

22. Anggraini MT, Lahdji A, Akbari FZ. *The Relationship Between Knowledge And Attitudes With Adherence To Taking Medication For Pulmonary Tuberculosis Patients.* in *Proceeding International Seminar of Community Health and Medical Sciences (ISOCMED).* 2022.

23. Tola HH, Azar T, Shojaeizadeh D, et al. Tuberculosis treatment non-adherence and lost to follow up among TB patients with or without HIV in developing countries: a systematic review. Iran J Public Health. 2015;44(1):1.

24. Buregyeya E, Kulane A, Colebunders R, et al. Tuberculosis knowledge, attitudes and health-seeking behaviour in rural Uganda. Int J Tuberculosis Lung Disease. 2011;15(7):938–42.