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Attitude towards prevention of tuberculosis among the inmates living with hiv in Kigo prison, Wakiso district. A cross-sectional study.

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ABSTRACT

Background:

Tuberculosis (TB) is an infectious disease caused by the bacterium Mycobacterium tuberculosis. The purpose of the study was to assess the attitude towards the prevention of tuberculosis among inmates living with HIV in Kigo prison, Wakiso District.

Methodology:

Adescriptive cross sectional which utilised quantitative methods of data collection, carried out at Kigo prison, Wakiso District. The study population was Inmates living with HIV, and the sample was 30 participants determined using the Yamane formula. The convenience sampling procedure was used. Analysis was done in Microsoft Excel and presented in tables and figures.

Results:

The highest proportion of respondents (33.3%) had education levels of primary and below; thus, the largest educational group. 73.3% thought that overcrowding was the biggest barrier to TB prevention in the prison environment and reinforced the influence of structural factors on disease prevention. 26.7% indicated that a large challenge of poor adherence to anti-TB therapy was also a barrier. One-third (33.3%) reported experiences of stigmatisation due to TB, while nearly two-thirds (66.7%) would not, which means that stigmatisation is still a major, but not universally experienced, barrier. 83.3% of inmates for whom TB screening is needed in prisons. 70.0% agreed counselling directly impacted their preconception care-seeking behaviours, which acknowledges the role of counselling on health awareness behaviour. Most of the respondents stated TB preventive campaigns were necessary, accounting to 90%, while the minority 10% stated not.

Conclusion:

Their attitudes, Inmates living with HIV were positive. Most supported routine screening, valued health education, and did not view TB as shameful, despite occasional stigma reports.

Recommendations:

Uganda Prisons Service should address the physical conditions in cells and the overcrowding with respect to existing facilities and their ventilation systems.

Keywords: *Attitude, Stigmatisation, Prevention of tuberculosis, Inmates living with HIV.*
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Background

Tuberculosis (TB) is an infectious disease caused by the bacterium Mycobacterium tuberculosis. It primarily affects the lungs but can also affect other parts of the body, such as the kidneys, spine, and brain. It spreads through the air when an infected person coughs or sneezes, releasing the bacteria in the infectious droplets. It is the commonest cause of death in acquired immune deficiency syndrome (AIDS) patients. The risk of development of active TB in HIV- infected individuals is up to 20–37 times higher than that of individuals who are HIV negative (Sekayi et al., 2023). Within East Africa, TB remains a pressing public health challenge, albeit with varying prevalence rates among countries. Factors such as economic disparities, population mobility, healthcare system limitations, and the intertwined impact of HIV/AIDS contribute to the TB landscape in the region. Additionally, the emergence of drug-resistant TB variants adds complexity to TB control initiatives. Collaborative efforts and regional alliances are crucial for addressing the multifaceted challenges of TB management in East Africa effectively (Molla et al., 2022).

Findings by Kamarulzaman et al. (2016) have indicated that 24.7% of the prisoners believed that being in contact with persons in closed places is considered to be a factor that increases contamination. Knowledge can influence individual attitudes and practices regarding TB prevention,

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provided that many inmates have never received ample information about TB and several different measures regarding its prevention. A study done by Adane et al. (2017) showed that 41% of the inmates had favorable attitudes. The majority of the inmates 84.2% believed that TB was a very serious disease, 69% mentioned that they would not fear or be ashamed, and when they had TB symptoms, they would simply visit a health care facility. A considerable proportion 27.3% had experienced stigmatizing towards TB disease (i.e they mentioned that they fear people having signs and symptoms of TB and would stay away from them).

In a study done by (Castro et al., 2019) showed that only 6% mentioned HIV positive inmates were aware being at most risk of TB infection, 66% of the inmates agreed that screening and testing of TB had very many health benefits, 72% agreed that TB was a very dangerous disease and 46% strongly agreed that TB screening and testing were vital. Overall, the inmates had positive attitudes towards the prevention of TB infection. A study done by Barca Durán et al. (2019) showed a high rate of a negative attitude towards preventive campaigns against tuberculosis. This was related to negative psychosociological factors, such as drug addiction, immunodeficiency due to HIV, and prolonged prison stays. Inmates had negative attitudes towards preventive treatment with Isoniazid in relation to the degree of immunodeficiency, a rejection of treatment with antiretroviruses, and the length of prison stay. The purpose of the study was to assess the attitude towards the prevention of tuberculosis among inmates living with HIV in Kigo prison, Wakiso District.

METHODOLOGY.

Study design and rationale.

In this study, a descriptive cross-sectional study design was utilised, which utilised quantitative methods of data collection. Data was analysed using Microsoft Excel.

Study setting and rationale.

The study took place in Kigo Prison, Wakiso District. This health facility is located in Ssabagabo- Makindye, Kyadondo, Wakiso District, Central Region, Uganda.

The prison has an elevation of 1,147 metres. Kigo-Prison is situated near the suburb Munyonyo and the town Kajjansi with geographical coordinates of Latitude 0.19792° or 0° 11' 53" north and Longitude 32.5988° or 32° 35' 56" east.

Kigo Prison houses 1400mates currently, but was meant to house 400 inmates (it is a small prison).

The study area is chosen because it is a small prison meant for a few prisoners, but is overcrowded with thrice the number meant for predisposing the HIV positive inmates to TB.

Study population.

The study targeted all inmates living with HIV in KIGO PRISON attending the prison clinic who were either on ART or not, and consented to participate in the study.

Sample size determination

The sample size was 30 respondents, determined using the Yamane formula.

$$n = \frac{N}{1 + N(e)_2}$$

$$n = \frac{33}{1 + 33(0.05)^2}$$

n=30 Participants Where: n is the sample size, N is the population, e is the margin of error (e=0.05)

Sampling Procedure

The convenience sampling technique was employed, where every inmate living with HIV that the study came across at the prison clinic was informed of the purpose of the study, and those who consented were selected to participate in the study. This sampling procedure was used because it was time and cost-effective to perform, whilst resulting in a range of responses. The study used this procedure until the required sample of 30 respondents was obtained.

Inclusion and Exclusion Criteria

Inclusion Criteria

All inmates living with HIV at Kigo prison who were accessible at the time of data collection, as well as those who consented to take part in the study.

Exclusion criteria

This includes inmates who are HIV negative and those living with HIV but did not consent.

Study variables

Independent variable

Attitudes towards the prevention of tuberculosis among inmates living with HIV in Kigo prison, Wakiso District.

Dependent variables

This was the prevention of tuberculosis among inmates living with HIV in Kigo prison, Wakiso District.

Research Instruments

A structured questionnaire consisting of both closed-ended and open-ended questions was used to obtain information because it was easy to fill out, saves time, and has a high chance of getting valid information. The study used an interpreter in case of a language barrier and inability to read and write among the respondents.

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Data collection procedures.

An introduction letter was obtained from the principal of Mildmay Institute of Health Sciences; the letter was taken to the administrator of the prison, requesting to carry out a research study at the facility, who in turn referred the study to the warders in charge of the male inmates and wardress in-charge of the females, and sought permission to conduct the research at their
clinic.
The warder/wardress later introduced the study to the other staff and clients available at the prison. After the study approached the participants, greeted them, explained the purpose of the study to them, and had them consent to take part in the study, a questionnaire was given to the participants with the help of the research assistants to be completed.
Data collection was done in 5 days, with a maximum of 6 respondents each day until 30 respondents were obtained, and the study administered questionnaires to be used.

Data Management and Analysis

In the process of data collection, each questionnaire, after being filled out, was checked for completeness and accuracy before leaving the area of study. Filled questionnaires were kept properly in a locker for confidentiality and safety.
The data collected was analysed by entering it in the computer using Microsoft Word and Microsoft Excel, where the data were represented in tables, graphs, pie-charts, and figures.

Quality Assurance (Validity and Reliability)

The integrity of the study was maintained by following established research procedures and closely supervising all stages of data collection.

Validity

To enhance validity, the study utilised well-structured and clearly defined research tools, which were pretested in a comparable environment to verify that they accurately captured the intended information. Experts reviewed the instruments to confirm their appropriateness (face validity). Potential bias was reduced by selecting a sample that reflected the target population.

Reliability

Reliability was strengthened by using uniform data collection methods, checking for consistency between different data collectors, and carrying out a pilot test to improve both the tools and the data collection process.

Ethical considerations

The study obtained a formal letter from the principal Mild May Institute of Health Sciences, which was used to obtain permission and consent from the warders at the cells of the study area. Informed consent was taken by explaining to the participants the purpose of the study and informing them that the study is only for academic purposes, and by providing assurance to individuals that their private information was protected and kept secure. The respondents were reassured of the confidentiality of their information, and their names were not included on the questionnaires, as code numbers were used on the questionnaires.
Autonomy was ensured by informing the participants of their rights to withdraw from the study at any time without any consequences.

RESULT.

Table 1: Socio-Demographic Factors of Respondents, n=30

Variable/questions	Options	Frequency	Percentage (%)
1. How old are you?	a) 18-24 years	3	10.0%
	b) 25-32 years	8	26.7%
	c) 33-40 years	13	43.3%
	d) Above 40 years	6	20.0%
2. What is your level of education?	a) Primary and below	10	33.3%
	b) Secondary level	9	30.0%
	c) Tertiary level	7	23.3%
	d) Graduate level	4	13.3%
3. What is your marital status?	a) Married	12	40.0%

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	b) Single	15	50.0%
	c) Divorced	3	10.0%
4. What is your occupation?	a) Teaching	5	16.7%
	b) Health care	6	20.0%
	c) Business	9	30.0%
	d) Farming	10	33.3%

Table 1, the most frequent age range for respondents was (43.3%) between 33 and 40 years, indicating that the bulk of participants were in middle adulthood. The least frequent age category was (10.0%) between 18 and 24 years, indicating that there were few younger inmates in the sample. The highest proportion of respondents (33.3%) had education levels of primary and below; thus, the largest educational group. The average stated the lowest percentage of education level at graduate (13.3%). Half of the participants (50.0%) indicated they were single, which was the most common marital status of the respondents. A small proportion (10.0%) of the respondents are separated, resulting in the least common marital status.

The most frequently stated occupation (33.3%) of the respondents prior to incarceration was farming, indicating they come from an agrarian background. The least common occupation (16.7%) was teaching.

The attitudes towards prevention of tuberculosis among inmates living with HIV in Kigo prison, Wakiso District.

Table 2: Shows some of the attitudes about TB among HIV clients

Variable/questions	Options	Frequency	Percentage (%)
What do you think hinders TB prevention in prison?	Overcrowding	22	73.30%
	Poor adherence to anti-TB therapy	8	26.70%

Table 2: The majority of people who answered (73.3%) thought that overcrowding was the biggest barrier to TB prevention in the prison environment and reinforced the influence of structural factors on disease prevention. Almost one-third (26.7%) indicated, however, that a large challenge of poor adherence to anti-TB therapy was also a barrier.

Figure 1: Shows the distribution of respondents according to whether they have ever experienced stigmatisation from the TB disease, N=30

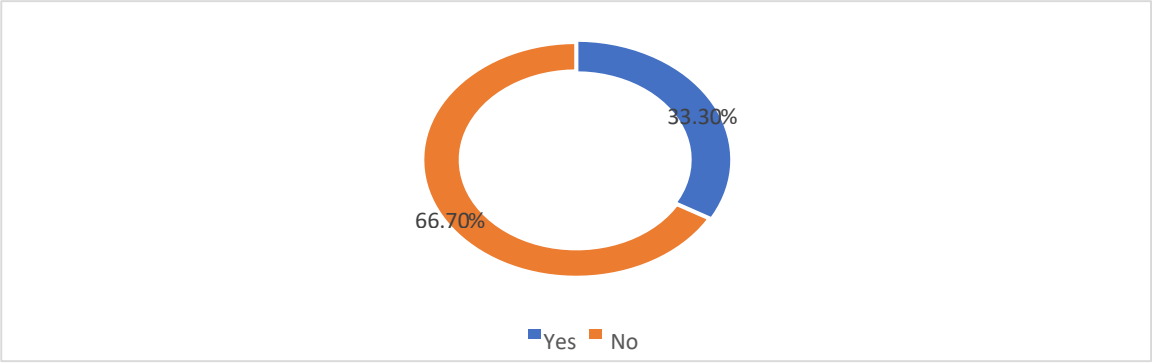

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Figure 1: In terms of stigmatisation, about one-third (33.3%) reported experiences of stigmatisation due to TB, while nearly two-thirds (66.7%) would not, which means that stigmatisation is still a major, but not universally experienced, barrier.

Figure 2: Shows the distribution of respondents according to whether TB screening was necessary in prisons, N=30

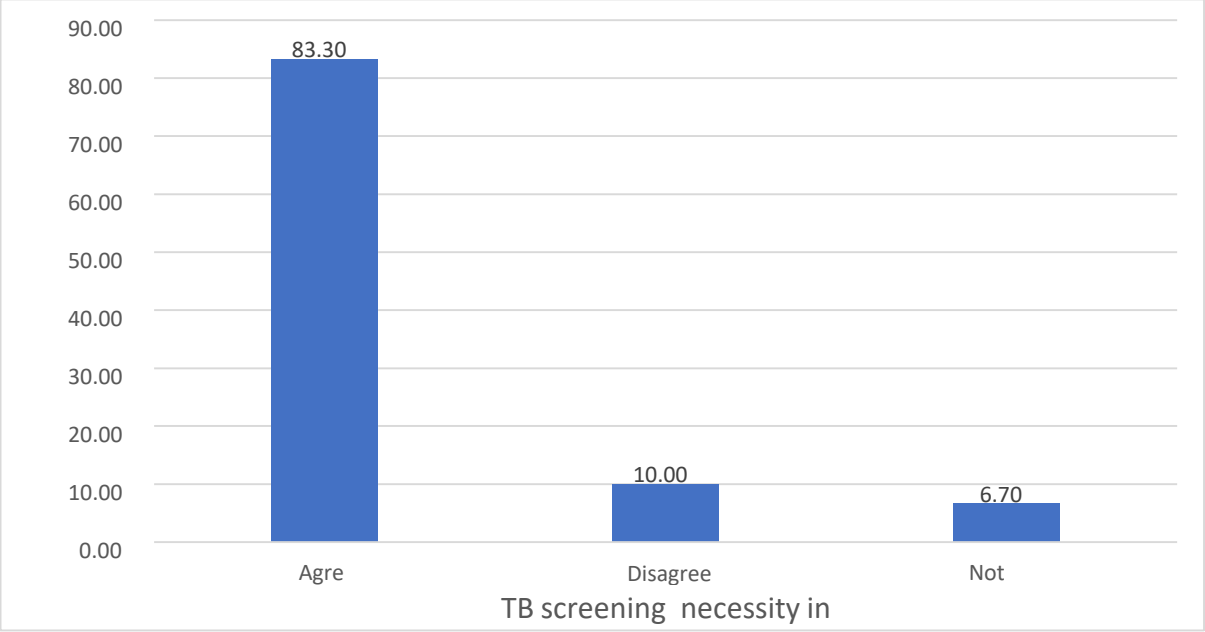

Figure 2: There was an overwhelming majority (83.3%) of inmates for whom TB screening is needed in prisons. Also, 70.0% agreed counselling directly impacted their preconception care-seeking behaviours, which acknowledges the role of counselling on health awareness behaviour.

Figure 3: Shows the distribution of respondents according to whether counselling affects their preconception care behaviour, N=30

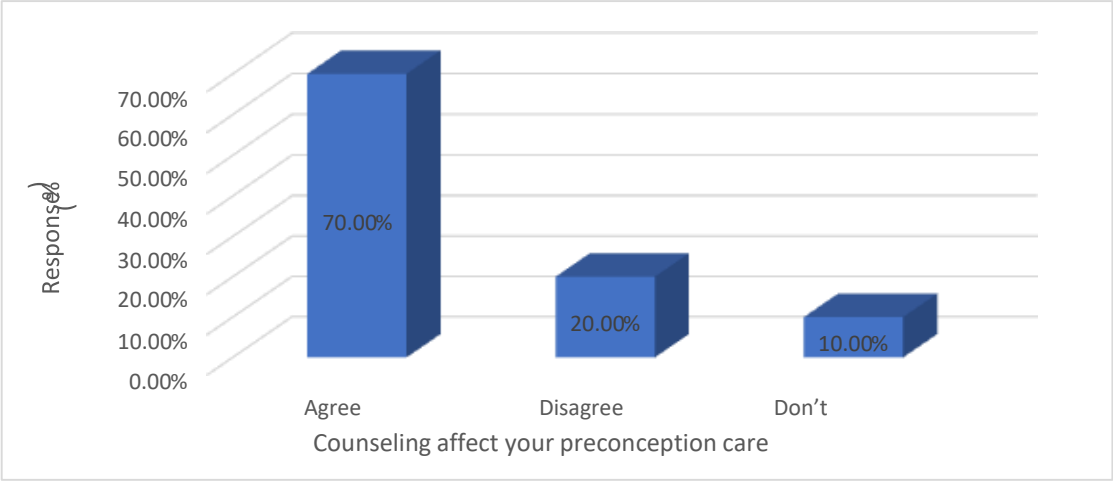

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Figure 3, most of the respondents agreed that counselling affects their prenatal care behavior, whereas the minority 10% did not know.

Figure 4: Shows the distribution of respondents according to whether TB preventive campaigns were necessary, N=30

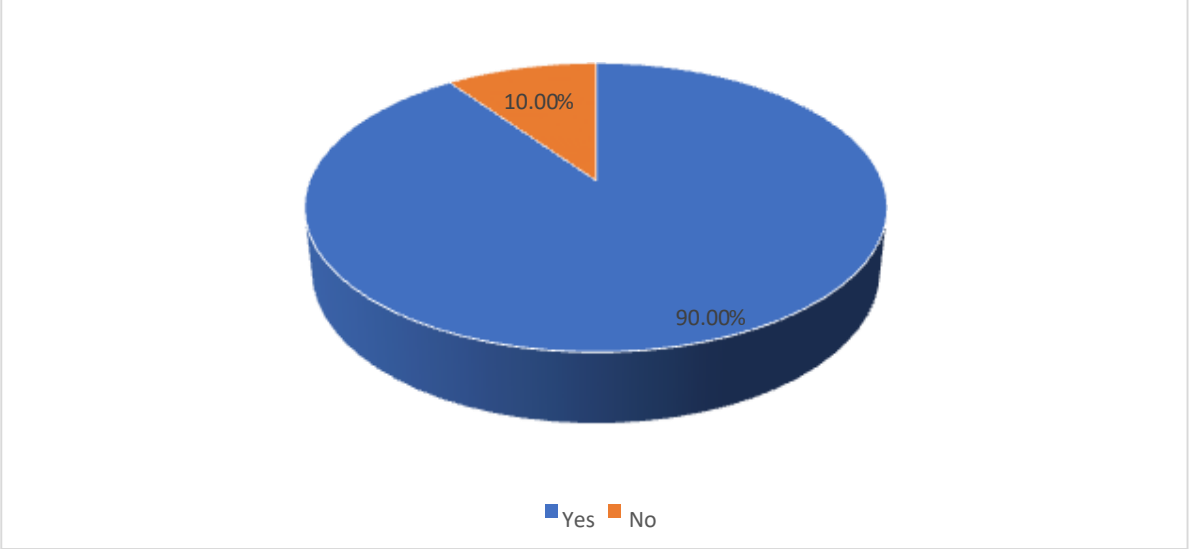

Figure 4:most of the respondents stated TB preventive campaigns were necessary, accounting to 90%, while the minority 10% stated not.

Table 3: TB preventive campaigns were not necessary, n=30

Variable/questions	Options	Frequency	Percentage (%)
If No to TB preventive campaigns were necessary, N=30, why aren't you interested?	Tired of taking many drugs	1	3.30%
	Drugs no longer help me	1	3.30%
	Tired of staying in prison	1	3.30%

Table 3: Out of the three respondents who stated that TB preventive campaigns were not necessary were divided among tired of taking many drugs, drugs no longer helping me, and tired of staying in prison.

Discussion

Most attitudes toward TB prevention were quite positive. A strong majority (83.3%) agreed that routine screening for TB in prisons is necessary, in line with WHO recommendations for systematic screening of prisons for TB. Crowding was identified by 73.3% as the most important barrier to TB control, which reflects the body of evidence globally that reflects the risk of TB transmission increases with crowding as well as poor ventilation.

Only one-third of inmates felt that they experienced stigma related to TB, which is lower than the community survey, where TB stigma was found to be quite substantial (Kasozi et al., 2024). For example, there have been studies in Uganda and Ethiopia that reported substantial TB-related stigma that hindered care-seeking; relatively lower TB stigma here may be a result of frequent counselling and support provided as part of HIV care. In fact, relatedly, 70% of inmates agreed that counselling helped them to think more positively about TB prevention behaviour. Almost all inmates (90%) supported TB preventive campaigns, also reflecting demand for ongoing education. Overall, attitudes toward TB screening and TB prevention were positive: inmates generally understood that screening for TB and prevention of

TB were important. This readiness is similar to community findings of 85% of Karamoja residents reported that they would seek TB care immediately if needed (Kasozi et al., 2024). However, stigma or misinformation regarding TB can remain even when one has knowledge of TB. The current data suggest that if the study continues to strengthen anti-stigma messages and emphasise the benefits of treatment, this may enhance a more positive attitude toward screening and TB prevention.

Conclusion

Their attitudes, Inmates living with HIV were positive. Most supported routine screening, valued health education, and did not view TB as shameful, despite occasional stigma reports.

Recommendations

Uganda Prisons Service should address the physical conditions in cells and the overcrowding with respect to existing facilities and their ventilation systems. These are important modifications to address airborne transmission of TB and create the safest health care environment possible for inmates and staff.

The Prisons Service should ensure an ongoing TB education and counselling program for HIV- infected inmates to reinforce positive attitudes, appropriate responses to stigma, and health- seeking behavior, especially by facilitating peer-led sensitisation and by promoting health talks as part of the supervision in prisons.

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LIST OF ABBREVIATIONS

AIDS: Acquired Immunodeficiency Syndrome
ART: Antiretroviral Therapy
HIV: Human Immunodeficiency Virus
TB: Tuberculosis
WHO: World Health Organisation

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The study was not funded

Conflict of interest:

The author declares no conflict of interest.

Data availability:

Data is available upon request

Author contribution:

Douglas Ebong collected data and drafted the manuscript of the study
Martha Akia supervised the study
Nansereko Hanifa supervised the study
Jane Frank Nalubega supervised the study

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Douglas Ebong is a student of a diploma in clinical medicine and community health at Mildmay Institute of Health Sciences.
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