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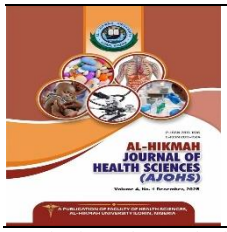

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Original Article

Evaluating Tuberculosis Screening Practice and Awareness Among Rural Dwellers in Selected Communities of Moro Local Government Area, Kwara State, Nigeria

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ABSTRACT

Introduction: With TB remaining a public health challenge in rural Nigeria, this study seeks to bridge knowledge gaps and enhance community-based strategies. This study evaluates tuberculosis (TB) screening practices and awareness among rural dwellers in selected communities of Moro Local Government Area (LGA), Kwara State, Nigeria, to inform targeted interventions for improved TB control.

Methods: A descriptive cross-sectional survey was conducted, which involved 263 respondents selected through a multistage sampling technique. Data were collected using a structured questionnaire capturing sociodemographic details, TB awareness, screening practices, and stigma perceptions. The study adhered to ethical standards, ensuring informed consent and confidentiality. Descriptive analysis was done using tables of frequencies, while inferential analysis was done using chi-square in SPSS.

Results: Knowledge of symptoms like persistent cough was high in Ajanaku and Shao, but vaccine awareness was low in Malete and Womi. Awareness varied, with Ajanaku at good awareness, contrasting with Malete and Womi. Screening uptake ranged from in Ajanaku to in Oloru, with willingness highest in Oloru. Access barriers peaked in Shao, linked to non-income residents. Education strongly influenced awareness, while income affected access in Malete and Womi. Stigma was moderate but did not deter screening.

Conclusion: The study concluded that TB screening practices and awareness in the Moro LGA area require targeted interventions to address educational disparities, economic barriers, and healthcare access. The government should invest in educational campaigns and mobile clinics, communities should promote local initiatives, and individuals should seek screening and personal education to enhance TB control efforts.

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Introduction

Tuberculosis (TB) continues to be one of the world's most persistent and deadly infectious diseases, caused by *Mycobacterium tuberculosis*, a bacterium transmitted through airborne droplets. Despite decades of global control efforts, TB remains a significant

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cause of illness and death. The World Health Organization (WHO) estimated that in 2019 alone, about 10 million people developed TB and 1.3 million died from the disease (WHO, 2020). Nigeria contributes substantially to this global burden, accounting for approximately 4.5% of all TB cases worldwide and ranking among the top 30 countries with high TB, TB/HIV co-infection, and multidrug-resistant TB (MDR-TB) burdens (WHO, 2023). In 2020, Nigeria reported 138,591 TB cases—a 15% increase from previous years—yet over 300,000 of the estimated 440,000 annual cases remain undetected, reflecting a serious gap in screening and case detection.

The continued spread of TB in Nigeria is largely driven by social, economic, and health system challenges. Factors such as poverty, malnutrition, overcrowding, and inadequate living conditions increase vulnerability to TB infection, while health system barriers—like limited diagnostic facilities, shortage of trained personnel, and insufficient health education—hinder effective prevention and treatment (Kasa et al., 2019). These challenges are more severe in rural areas such as Moro Local Government Area (LGA) of Kwara State, where healthcare infrastructure is weak, literacy levels are low, and communities are widely dispersed. In such areas, TB awareness and screening uptake are often minimal, compounded by reliance on passive case-finding, where patients must voluntarily report to health facilities. Long travel distances, transportation difficulties, and low health-seeking behaviour further reduce case detection in these settings.

While studies in urban areas like Lagos State indicate relatively high TB awareness—Akande (2025) found that 96.5% of working adults had heard of TB—actual screening rates remain low at only 45.2%. This suggests that awareness does not necessarily translate into action. In rural communities like Moro LGA, awareness and screening rates are likely to be much lower due to limited exposure to health education campaigns and mass media. In addition, stigma and cultural misconceptions about TB—such as beliefs that it is caused by divine punishment, witchcraft, or smoking—create psychological and social barriers that discourage people from seeking testing or treatment.

Although TB is curable with a standard six-month regimen of first-line drugs (isoniazid, rifampicin, ethambutol, and pyrazinamide), the emergence of multidrug-resistant TB (MDR-TB) has made treatment more complicated and expensive. The WHO's End TB Strategy, adopted in 2016, aims to reduce TB incidence by 85% and deaths by 90% by the year 2030 through a framework built on three pillars: integrated, people-centered care and prevention; strong policies and supportive systems; and intensified research and innovation (WHO, 2016). Nigeria's adoption of this strategy and implementation of the Directly Observed Therapy Short-course (DOTS) program—with over 5,000 facilities nationwide—have improved treatment access. However, implementation in rural areas remains limited due to logistical and infrastructural constraints (Akande, 2025).

The Global End TB Strategy emphasizes community-level screening and engagement as critical to reducing undetected TB cases. Evidence shows that decentralized, people-centered approaches—such as door-to-door screening, mobile clinics, and community-led monitoring significantly improve case detection, reduce stigma, and enhance treatment uptake. These global findings directly support your Moro LGA study, where poor awareness and economic barriers limited screening practices.

The situation in rural Kwara State is further complicated by poor knowledge of preventive measures such as TB Preventive Treatment (TPT). Akande (2025) observed that even in urban Lagos, only 31% of respondents were aware of TPT. It is therefore likely that awareness in rural settings is even lower, given their reduced access to healthcare information and services. Similar challenges have been documented in other African contexts, such as Chad, where underreporting and weak surveillance systems have led to large numbers of undetected cases (Ministère de la Santé Publique du Tchad, 2021). Moreover, the COVID-19 pandemic severely disrupted TB control efforts globally and nationally, reducing case notifications and delaying treatment services in 2020 (WHO, 2020). In rural Nigeria, where healthcare systems were already overstretched, this disruption likely intensified the gaps in diagnosis and treatment of TB.

Given these realities, understanding the level of awareness, attitudes, and screening practices among rural populations is essential for effective TB control. The participation of community members in early detection and case reporting can significantly enhance Nigeria's efforts to achieve the End TB Strategy goals. Hence, this study seeks to evaluate tuberculosis screening practices and awareness among rural dwellers in selected communities of Moro LGA, Kwara State. By identifying knowledge gaps, barriers, and misconceptions, the study aims to provide evidence-based recommendations that will strengthen community engagement, improve screening coverage, and ultimately reduce the burden of tuberculosis in rural Kwara State and beyond.

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Methodology

Research Design

The study was a descriptive cross-sectional study using a quantitative method of data collection.

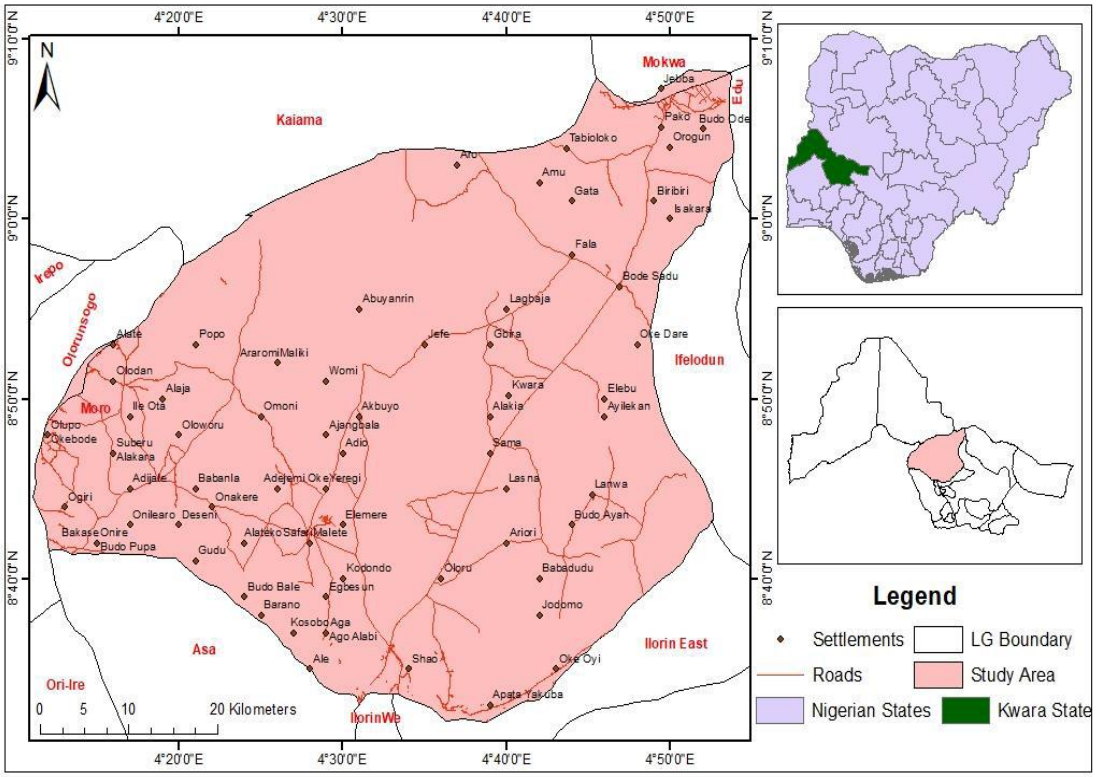
Target Population

The target population for this study consists of adult residents aged 18 years and above living in rural communities within Moro LGA, Kwara State**.**

Exclusion criteria: those not willing to participate. residents less than 18 years of age and those that eligible but are sick during the exercise.

Study Area

The study area is Moro Local Government Area in Kwara State, Nigeria, with its headquarters at Bode Saadu. The study area is located between Latitudes 8°31'43"N and 9°9'4"N of the Equator and Longitudes 4°10'30"E to 4°51'1"E of the Greenwich Meridian, covering a total landmass of 3,272 km². It is bordered by Asa, Ilorin West, and Ilorin East LGAs in Kwara State to the south, Kaiama LGA in Kwara State and Mokwa LGA in Niger State to the north, Olorunsogo LGA in Kwara State to the west, and Ifelodun LGA in Kwara State to the east (Olalubi et al., 2020). Moro LGA has a tropical wet and dry climate with double rainfall maxima, featuring a rainy season from April to October and a dry season from November to March, with an average annual rainfall of 1200 mm (Adio et al., 2022). The population, as reported by the National Population Commission and National Bureau of Statistics, is 163,200.



Sample Size and Participant Recruitment

The sample size was calculated based on an estimated population proportion (0.5 for maximum variability), at a 95% confidence level and a 5% margin of error. To accommodate possible non-response or incomplete data, a 10% allowance was added, 250 questionnaires were distributed to improve the power of the study. A multistage sampling technique was used to select five wards by simple random sampling from 11 wards in Moro local government without replacement. From each ward, five communities were also selected using simple random sampling method. From each community, a grid method was used where a coin is tossed and the head points to the streets. From each selected household, one eligible adult (18 years or older) was interviewed. If there were more than one eligible adult, simple random sampling (such as a ballot method) was used to select the respondent. The first respondent was randomly selected within the sampling interval, while subsequent respondents were selected using the sampling interval until the desired sample size for each department was completed. If no eligible adult is available, the next household is approached. Advocacy visits were made to community

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leaders and health facility heads in the selected wards to inform them of the study and solicit their support

Method of Data Collection and Data Analysis

Data were collected using a structured interviewer-administered questionnaire titled Tuberculosis Awareness and Screening Practices Questionnaire (TASPQ). Five research assistants, fluent in the local languages, were trained by the researcher to ensure a clear understanding of the study objectives and accurate administration of the questionnaire in the field. The training was conducted a few days before data collection and included both pre- and post-training evaluations to assess the assistants' comprehension, ethical conduct, and competence in administering the instrument.

The questionnaire was validated through the pretest to discover the ambiguity in the worded questionnaire as well as whether the tool measures what it intended to measure and gives consistent results and to reduce recall bias.

Data collection lasted for three weeks and involved face-to-face administration of the questionnaire to respondents in selected communities across Moro Local Government Area (LGA). The assistants read questions aloud to illiterate respondents and recorded their responses, while the researcher supervised the entire process to ensure consistency, accuracy, and completeness of data. Completed questionnaires were reviewed daily to check for missing information and ensure data quality.

Data were entered, cleaned, and analyzed using the Statistical Package for the Social Sciences (SPSS) version 29. The analysis was carried out according to the study's objectives. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondents' socio-demographic characteristics and their levels of TB awareness and screening practices. Inferential statistics, particularly the Chi-square test, were employed to examine associations between demographic factors (such as education level and gender) and TB awareness or screening uptake. Logistic regression analysis was further conducted to identify predictors of TB screening practices, including knowledge level and perceived stigma. The level of statistical significance for all tests was set at $p \leq 0.05$. Results were presented in tables, charts, and narrative summaries for clarity and comprehensive interpretation.

Ethical Considerations

A written permission was obtained prior to the study from the Department of Public Health, School of Basic Medical Sciences, Kwara State University, Malete. Verbal informed consent was obtained from the target population of this study, who agreed to participate in the study, as they were told that participation was voluntary and they would not suffer any consequences if they chose not to participate. Anonymity and confidentiality of all information from respondents were maintained and assured throughout the study process. Information collected was kept confidential and the respondents' names were not asked in the questionnaire.

Results

Table 1: Demographic Characteristics by Ward

Demographic	Category	Ajanaku (n=55)	Malete (n=45)	Oloru (n=41)	Womi (n=45)	Shao (n=77)
Age	18-25	11 (20.00%)	4 (8.89%)	19 (46.34%)	4 (8.89%)	37 (48.05%)
	26-35	17 (30.91%)	9 (20.00%)	7 (17.07%)	9 (20.00%)	13 (16.88%)
	36-45	14 (25.45%)	16 (35.56%)	10 (24.39%)	16 (35.56%)	10 (12.99%)
	46-55	7 (12.73%)	10 (22.22%)	2 (4.88%)	10 (22.22%)	7 (9.09%)
	56+	6 (10.91%)	6 (13.33%)	3 (7.32%)	6 (13.33%)	10 (12.99%)

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Demographic	Category	Ajanaku (n=55)	Malete (n=45)	Oloru (n=41)	Womi (n=45)	Shao (n=77)
Gender	Male	28 (50.91%)	18 (40.00%)	7 (17.07%)	18 (40.00%)	33 (42.86%)
	Female	27 (49.09%)	27 (60.00%)	34 (82.93%)	27 (60.00%)	44 (57.14%)
Education	No formal	6 (10.91%)	15 (33.33%)	6 (14.63%)	15 (33.33%)	14 (18.18%)
	Primary	9 (16.36%)	14 (31.11%)	7 (17.07%)	14 (31.11%)	12 (15.58%)
	Secondary	15 (27.27%)	14 (31.11%)	4 (9.76%)	14 (31.11%)	37 (48.05%)
	Tertiary	25 (45.45%)	2 (4.44%)	24 (58.54%)	2 (4.44%)	14 (18.18%)
Income	<₦10,000	7 (12.73%)	1 (2.22%)	12 (29.27%)	1 (2.22%)	12 (15.58%)
	₦10,000-30,000	11 (20.00%)	11 (24.44%)	15 (36.59%)	11 (24.44%)	12 (15.58%)
	₦30,001-50,000	15 (27.27%)	11 (24.44%)	1 (2.44%)	11 (24.44%)	16 (20.78%)
	>₦50,000	22 (40.00%)	22 (48.89%)	6 (14.63%)	22 (48.89%)	18 (23.38%)
	No income	0 (0%)	0 (0%)	7 (17.07%)	0 (0%)	31 (40.26%)

Table 1 provides a detailed breakdown of demographic characteristics across the five wards in Moro LGA Area of Kwara (Ajanaku, Malete, Oloru, Womi, and Shao), including age, gender, education, and income distributions. In terms of age, the ward of Oloru exhibits the highest proportion of individuals aged 18-25, accounting for 46.34% of its population, while Shao follows closely with 48.05% in the same age bracket, suggesting a youthful demographic profile in these areas. In contrast, Ajanaku shows a notable concentration of 30.91% of its residents in the 26-35 age range, indicating a slightly older working-age population. Malete and Womi display a more evenly distributed age structure across all categories, with no single group dominating. Regarding gender, Oloru stands out with a significant female majority, comprising 82.93% of its population, whereas Ajanaku presents a near-balanced distribution with 50.91% male and 49.09% female. The other wards, including Malete, Womi, and Shao, show a slight predominance of females, ranging from 57.14% to 60.00%. For education levels, Ajanaku and Oloru lead with higher proportions of tertiary education, at 45.45% and 58.54% respectively, reflecting greater access to higher education in these wards. Conversely, Malete and Womi report a substantial 33.33% of their populations with no formal education, indicating potential educational disparities. Shao, however, has 48.05% of its residents with secondary education, suggesting a middle-tier educational attainment.

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Income distribution reveals that Ajanaku and Malete have the highest percentages of individuals earning above ₦50,000, at 40.00% and 48.89% respectively, indicating relatively better economic conditions. In contrast, Oloru and Shao show significant proportions with no income, at 17.07% and 40.26% respectively, highlighting economic challenges in these areas.

Table 2: Awareness Level on Tuberculosis by Ward

Awareness Level	Ajanaku (n=55)	Malete (n=45)	Oloru (n=41)	Womi (n=45)	Shao (n=77)
Good	34 (61.82%)	9 (20.00%)	15 (36.59%)	9 (20.00%)	25 (32.47%)
Poor	21 (38.18%)	36 (80.00%)	26 (63.41%)	36 (80.00%)	52 (67.53%)

Table 2 evaluates the awareness levels of tuberculosis (TB) across the five wards, categorized as good or poor. Ajanaku demonstrates the highest level of good awareness, with 61.82% of its population classified as having adequate knowledge about TB. In contrast, Malete and Womi report the lowest levels of good awareness, each at 20.00%, suggesting a significant knowledge gap. Oloru and Shao fall in an intermediate range, with 36.59% and 32.47% respectively exhibiting good awareness. On the other hand, poor awareness is most prevalent in Malete and Womi, where 80.00% of residents lack sufficient TB knowledge, pointing to a critical need for targeted educational interventions in these wards. Ajanaku's high awareness level may reflect better access to information or education, while the lower figures in Malete and Womi could indicate barriers such as limited outreach or literacy.

Table 3: Correct Knowledge of TB Items by Ward

Knowledge Item	**Ajanaku (n=55) Correct n(%)**	**Malete (n=45) Correct n(%)**	**Oloru (n=41) Correct n(%)**	**Womi (n=45) Correct n(%)**	**Shao (n=77) Correct n(%)**
Persistent cough symptom	40 (72.73%)	11 (24.44%)	15 (36.59%)	11 (24.44%)	63 (81.82%)
TB causes weight loss	39 (70.91%)	13 (28.89%)	20 (48.78%)	13 (28.89%)	22 (28.57%)
Airborne transmission	28 (50.91%)	12 (26.67%)	14 (34.15%)	12 (26.67%)	53 (68.83%)
Spread in crowded places	51 (92.73%)	18 (40.00%)	18 (43.90%)	18 (40.00%)	52 (67.53%)
Good ventilation prevents	15 (27.27%)	19 (42.22%)	11 (26.83%)	19 (42.22%)	10 (12.99%)
Vaccine exists	39 (70.91%)	6 (13.33%)	16 (39.02%)	6 (13.33%)	36 (46.75%)
TB is curable	44 (80.00%)	41 (91.11%)	20 (48.78%)	41 (91.11%)	27 (35.06%)

Table 3 details the percentage of correct responses to specific TB knowledge items across the wards, providing insight into public understanding of symptoms, transmission, and prevention. Ajanaku and Shao exhibit high correct recognition of persistent cough as a TB symptom, with 72.73% and 81.82%

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respectively, indicating strong awareness of this key indicator. Malete and Womi, however, lag significantly, with only 24.44% correct responses each. The understanding that TB causes weight loss is highest in Ajanaku at 70.91%, while Shao records a lower 28.57%, and Malete and Womi again trail at 28.89%. Knowledge of airborne transmission is moderately recognized in Ajanaku (50.91%) and Shao (68.83%), but lower in Malete, Womi, and Oloru (26.67%-34.15%). The concept that TB spreads in crowded places is widely acknowledged in Ajanaku, with 92.73% correct, but less so in Malete, Womi, and Oloru, ranging from 40.00% to 43.90%. Awareness of good ventilation as a preventive measure is lowest in Shao at 12.99%, with Ajanaku and Oloru also low at 27.27% and 26.83%, while Malete and Womi reach 42.22%. Belief in the existence of a TB vaccine is highest in Ajanaku at 70.91% and lowest in Malete and Womi at 13.33%, with Shao at 46.75%. Finally, the understanding that TB is curable is well-recognized in Malete and Womi at 91.11%, but significantly lower in Shao at 35.06%, with Ajanaku at 80.00% and Oloru at 48.78%.

Table 4: TB Screening Practices by Ward (% and Mean ± SD)

Measure	Ajanaku	Malete	Oloru	Womi	Shao
Ever Tested (% Yes)	56.36	42.22	12.20	42.22	22.08
Screening Willingness	1.93 ± 0.74	1.48 ± 0.48	2.15 ± 0.54	1.48 ± 0.48	1.98 ± 1.04
Access Barriers	2.58 ± 0.49	2.89 ± 0.48	2.63 ± 0.53	2.89 ± 0.48	2.93 ± 0.73

Scale: 1 (Low) to 4 (High)

Table 4 assesses TB screening practices, including the percentage of individuals ever tested and mean scores for screening willingness and access barriers on a 1-4 scale. Ajanaku records the highest rate of individuals ever tested, at 56.36%, indicating a proactive approach to screening, while Oloru has the lowest rate at 12.20%, suggesting underutilization. Screening willingness is highest in Oloru, with a mean of 2.15 ± 0.54, and Shao at 1.98 ± 1.04, reflecting moderate to high interest, whereas Malete and Womi show the lowest willingness at 1.48 ± 0.48. Access barriers are most pronounced in Shao, with a mean of 2.93 ± 0.73, and Malete at 2.89 ± 0.48, indicating significant obstacles such as distance or cost, while Ajanaku reports 2.58 ± 0.49 and Oloru 2.63 ± 0.53, suggesting slightly better access.

Table 5: Stigma Scores by Ward (3–12 Scale, Mean ± SD)

Ward	**Mean ± SD**	**Min**	**Max**
Ajanaku	7.20 ± 1.50	4	11
Malete	6.09 ± 2.07	3	10
Oloru	7.63 ± 1.68	4	10
Womi	6.09 ± 2.07	3	10
Shao	7.04 ± 2.82	3	12

Table 5 presents mean stigma scores and their ranges across the wards, measured on a 3-12 scale. Oloru records the highest mean stigma score at 7.63 ± 1.68, with a range from 4 to 10, suggesting a strong perception of TB-related stigma. Ajanaku follows with a mean of 7.20 ± 1.50, ranging from 4 to 11, and Shao at 7.04 ± 2.82, with the widest range from 3 to 12, indicating diverse attitudes. Malete and Womi share the lowest mean scores at 6.09 ± 2.07, with ranges from 3 to 10, reflecting relatively lower stigma levels but with some variability.

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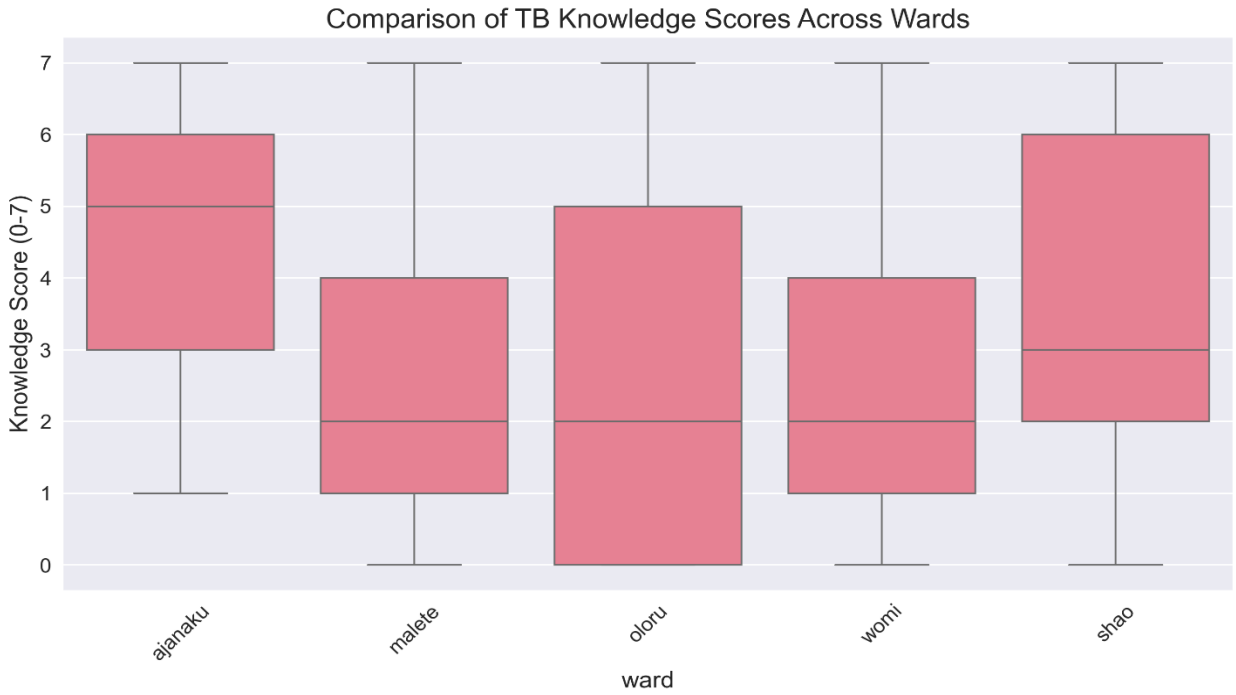

Figure 1: Comparison of TB Knowledge Scores Across Wards

Figure 2 illustrates the distribution of TB knowledge scores across the wards. Ajanaku and Shao exhibit the highest median scores, approximately 5 to 6, with Shao displaying a broader interquartile range (IQR), indicating greater variability in knowledge levels. Malete and Womi show lower medians around 4, suggesting a consistent lower knowledge base, while Oloru's median is moderate, around 4 to 5, with a narrower IQR, reflecting more uniform knowledge distribution.

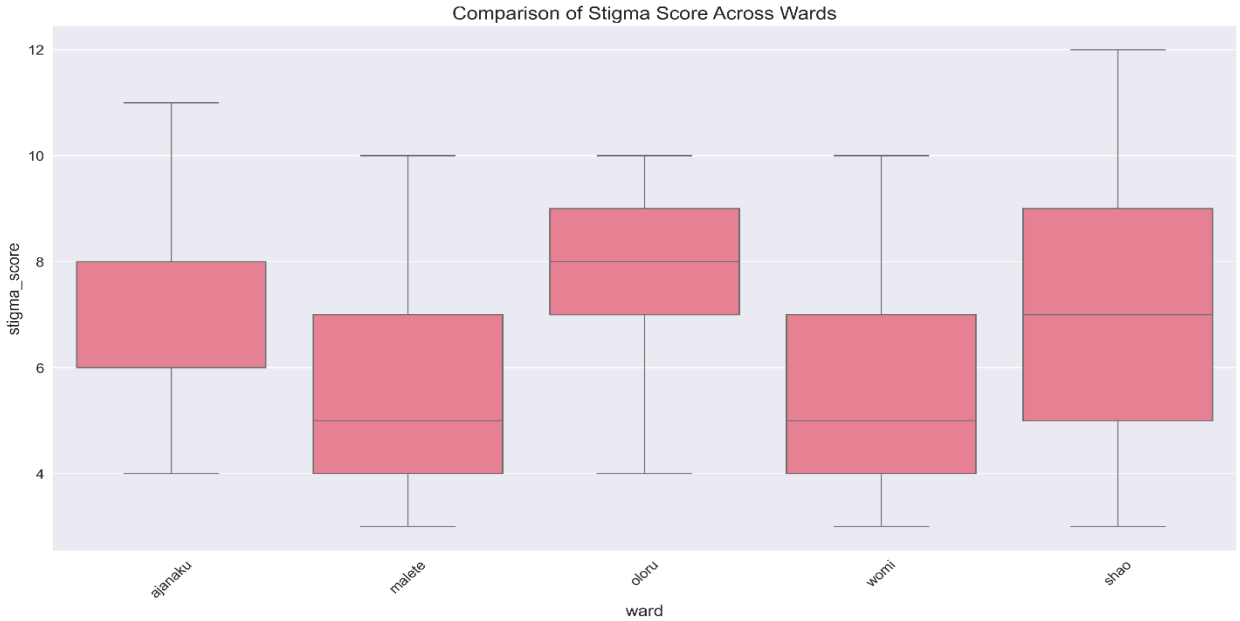

Figure 2: Comparison of Stigma Score Across Wards

Figure 3 depicts the distribution of stigma scores. Oloru presents the highest median, ranging from 7 to 8, with a tight IQR, indicating a consistent high stigma perception. Ajanaku and Shao have medians around 7, with Shao showing the widest IQR, suggesting diverse stigma experiences. Malete and Womi have lower medians around 6, with similar IQRs, pointing to a more uniform lower stigma level.

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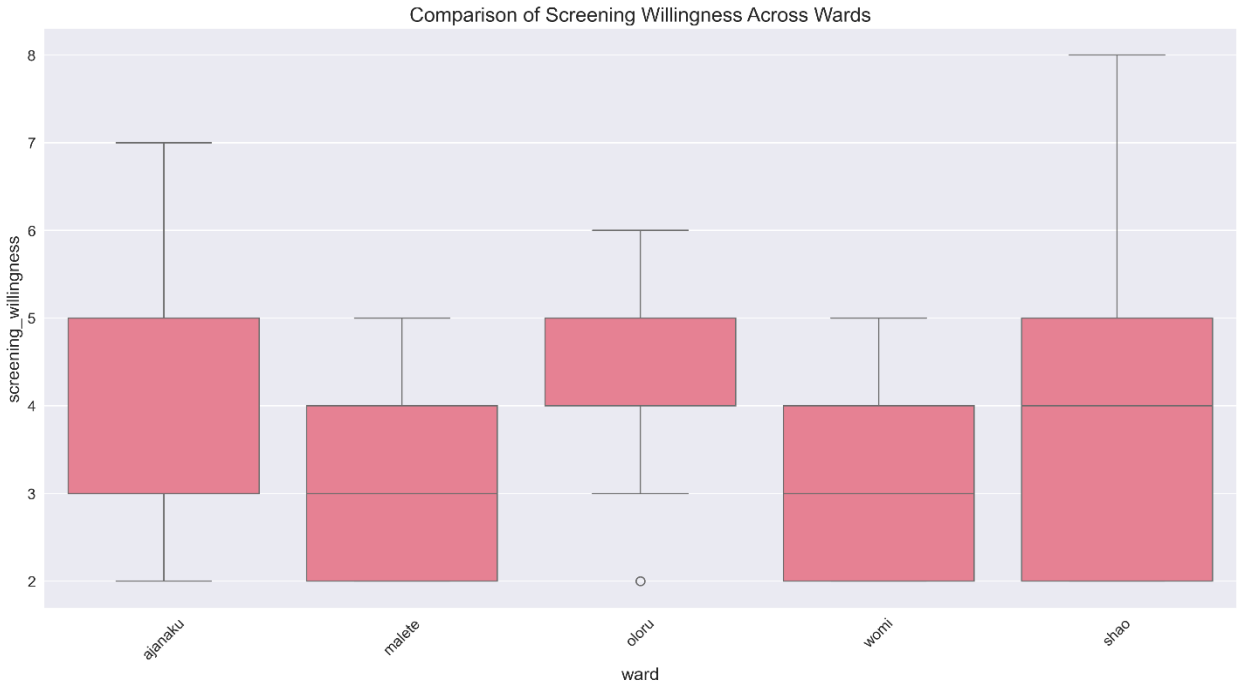

Figure 3: Comparison of Screening Willingness Across Wards

Figure 4 plot for screening willingness shows Oloru and Shao with higher medians, approximately 2 to 2.5, with Shao exhibiting greater variability. Ajanaku's median is around 2, indicating moderate willingness, while Malete and Womi have lower medians around 1.5, with narrower IQRs, suggesting less enthusiasm for screening.

Confidence Intervals by Ward (95%)

Ward	Awareness (Good %)	95% CI	Screening Uptake (% Ever Tested)	95% CI	Stigma Mean ± SD	95% CI
Ajanaku	61.8% (34/55)	49–75%	56.4% (31/55)	43–70%	7.20 ± 1.50 (n=55)	6.80–7.60
Malete	20.0% (9/45)	9–34%	42.2% (19/45)	28–57%	6.09 ± 2.07 (n=45)	5.47–6.7
Oloru	36.6% (15/41)	22–53%	12.2% (5/41)	2–22%	7.63 ± 1.68 (n=41)	7.10–8.16
Womi	20.0% (9/45)	9–34%	42.2% (19/45)	28–57%	6.09 ± 2.07 (n=45)	5.47–6.7
Shao	32.5% (25/77)	22–43%	22.1% (17/77)	13–32%	7.04 ± 2.82 (n=77)	6.42–7.66

Hypothesis I

H_{01}: There is no significant association between the level of education and TB awareness (knowledge of symptoms, transmission, and prevention) among rural dwellers in Moro LGA.

Table 6: Association Between Education Level and TB Awareness by Ward

Ward	Test Type	χ^2 (df)	p-value	Effect Size (Cramér's V)	Interpretation
Ajanaku	Chi-square	21.041	.0001	.619 (Large)	Reject H_{01}
Malete	Chi-square	10.595	.0141	.485 (Medium)	Reject H_{01}
Oloru	Chi-square	16.755	.0008	.639 (Large)	Reject H_{01}
Womi	Chi-square	10.595	.0141	.485 (Medium)	Reject H_{01}
Shao	Chi-square	9.673	.0216	.354 (Medium)	Reject H_{01}

Hypothesis II

H_{02}: There is no significant association between TB-associated stigma and the uptake of TB screening among rural dwellers in Moro LGA.

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Table 7: Association Between TB-Associated Stigma and TB Screening Uptake by Ward

Ward	Test Type	χ^2 (df)	p-value	Effect Size (Cramér's V)	Interpretation
Ajanaku	Chi-square	1.010	.3149	.136 (Small)	Fail to Reject H_{02}
Malete	Chi-square	2.471	.1160	.234 (Small)	Fail to Reject H_{02}
Oloru	Chi-square	0.000	1.0000	.000 (Negligible)	Fail to Reject H_{02}
Womi	Chi-square	2.471	.1160	.234 (Small)	Fail to Reject H_{02}
Shao	Chi-square	0.182	.6698	.049 (Negligible)	Fail to Reject H_{02}

Hypothesis III

H_{03}: There is no significant association between the income of respondents and access to TB services among rural dwellers in Moro LGA.

Table 8: Association Between Income and Access to TB Services by Ward

Ward	Test Type	H (df)	p-value	Interpretation
Ajanaku	Kruskal-Wallis	2.648	.4491	Fail to Reject H_{03}
Malete	Kruskal-Wallis	8.789	.0322	Reject H_{03}
Oloru	Kruskal-Wallis	6.748	.1498	Fail to Reject H_{03}
Womi	Kruskal-Wallis	8.789	.0322	Reject H_{03}
Shao	Kruskal-Wallis	2.087	.5545	Fail to Reject H_{03}

Table 9: Summary of Hypothesis Testing Outcomes Across Wards

Hypothesis	Ajanaku	Malete	Oloru	Womi	Shao
H_{01}: Education ↔ Awareness	Rejected	Rejected	Rejected	Rejected	Rejected
H_{02}: Stigma ↔ Screening Uptake	Not Rejected	Not Rejected	Not Rejected	Not Rejected	Not Rejected
H_{03}: Income ↔ Access to TB Services	Not Rejected	Rejected	Not Rejected	Rejected	Not Rejected

Discussion

The findings of this study reveal significant disparities in tuberculosis (TB) awareness, screening practices, and stigma across rural wards in Moro LGA, Kwara State. While Ajanaku demonstrated relatively high awareness and screening uptake, Malete and Womi exhibited poor knowledge and low willingness, underscoring the uneven distribution of health information and services in rural Nigeria. These results align with previous studies in urban contexts, such as Akande (2025), which reported high awareness but low screening rates in Lagos. However, unlike urban populations where awareness is widespread, rural communities face compounded challenges of low literacy, poor access to health facilities, and entrenched cultural misconceptions. This divergence highlights the limitations of extrapolating urban findings to rural settings and calls for context-specific interventions.

Critique of Literature

Existing literature often emphasizes awareness as a proxy for improved health-seeking behavior. For instance, WHO (2020) and Kasa et al. (2019) argue that knowledge of TB symptoms should drive early detection. Yet, our study demonstrates that awareness alone does not guarantee screening uptake, particularly in resource-constrained rural areas. Malete and Womi, despite moderate recognition of TB curability, showed low willingness to undergo screening, suggesting that structural barriers—such as income and access—may outweigh knowledge. This challenges the assumption in global TB control frameworks that awareness campaigns alone are sufficient. Moreover, stigma, frequently cited as a major deterrent in African contexts (Ministère de la Santé Publique du Tchad, 2021), was found in our study to be moderate but not statistically associated with screening uptake. These findings question the universal applicability of stigma-focused interventions and suggest that in rural Kwara, economic and infrastructural barriers may be more decisive.

Implications for TB Elimination Strategies in Nigeria

Nigeria's National Strategic Plan for TB Control (2021–2025) sets ambitious targets for case detection and treatment success. However, the evidence from Moro LGA indicates that rural communities remain far below these benchmarks. To achieve the End TB Strategy goals, interventions must prioritize:

Educational equity: Addressing the strong association between education and awareness, as demonstrated by significant chi-square results across wards.

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Economic support: Tackling income-related barriers, particularly in Malete and Womi, where low-income groups reported reduced access to TB services. Decentralized screening: Expanding mobile clinics and community-based case finding to reduce reliance on passive facility-based detection.
Role of Primary Health Care and Community Health Workers (CHWs)
Primary health care facilities and CHWs are pivotal in bridging the rural–urban gap in TB control. CHWs, embedded within communities, can:
Conduct door-to-door screening and sputum collection, reducing travel burdens.
Provide continuous health education, tailored to local languages and cultural contexts.
Act as trust brokers, mitigating misconceptions about TB causation (e.g., witchcraft or divine punishment).
Strengthening PHC infrastructure in Moro LGA, coupled with training and incentivizing CHWs, would enhance early detection and improve treatment adherence.
Health Communication Strategies for Low-Literacy Areas
Given the high proportion of respondents with no formal education in Malete and Womi (33.3%), conventional text-based campaigns are insufficient. Effective strategies should include:
Visual and oral communication: Use of pictorial posters, radio jingles, and community drama to convey TB symptoms and prevention.
Local language messaging: Ensuring that TB information is disseminated in Yoruba and Nupe, the dominant languages in Moro LGA.
Peer education models: Leveraging respected community members to normalize TB screening and treatment.
Interactive approaches: Community dialogues and storytelling sessions to counter myths and reduce stigma. Here's a strong Conclusion section draft for your paper, tying together the findings, critiques, and practical implications:

Conclusion

This study evaluated tuberculosis (TB) awareness, screening practices, and stigma among rural dwellers in Moro Local Government Area of Kwara State, Nigeria. The findings revealed significant disparities across wards, with Ajanaku showing relatively high awareness and screening uptake, while Malete and Womi demonstrated poor knowledge and low willingness. Education emerged as a critical determinant of awareness, while income significantly influenced access to TB services in certain wards. Stigma was present but did not statistically deter screening, suggesting that structural and economic barriers may be more decisive in rural settings.

Recommendations

Strengthen Primary Health Care (PHC)
Expand TB diagnostic and treatment services to all PHC facilities in Moro LGA.
Integrate TB screening into routine PHC services (antenatal care, immunization, outpatient visits).
Ensure a consistent supply of diagnostic tools and first-line TB drugs.
2. Empower Community Health Workers (CHWs)
Train CHWs to conduct door-to-door TB screening and sputum collection.
Deploy CHWs as health educators in local languages to counter myths.
Establish community-based monitoring systems for treatment adherence.
3. Tailored Health Communication for Low-Literacy Areas
Use pictorial posters, radio jingles, and community drama to convey TB messages.
Disseminate information in Yoruba and Nupe, the dominant local languages.
Promote peer education models using respected community leaders and TB survivors.
4. Address Economic Barriers
Provide transport vouchers or conditional cash transfers to low-income households.
Partner with NGOs and cooperatives to support households affected by TB.
Communicate clearly that TB services are free at the point of care.
5. Expand Community-Based Screening Initiatives
Implement mobile clinics and outreach campaigns in wards with low uptake.
Adopt active case finding strategies rather than passive facility-based detection.
Integrate TB screening with other community health programs (HIV, maternal health).
6. Policy and Research Implications
Kwara State Ministry of Health should prioritize rural TB interventions in its health budget.
Conduct operational research on CHW-led interventions and low-literacy communication strategies.
Establish community feedback mechanisms to monitor stigma reduction and service accessibility.
Limitations of the Study
The study was conducted in a specific rural area (Moro LGA, Kwara State), which may limit the generalizability of findings to other regions in Nigeria or beyond.
Data collection relied on self-reported information, which may be subject to recall bias or social desirability bias.
The cross-sectional design limits the ability to establish causal relationships between factors such as education, income, stigma, and TB screening uptake.

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Limited resources and logistical challenges may have constrained the depth and breadth of data collection, particularly in hard-to-reach communities.
Stigma measurement may not have captured all dimensions of stigma affecting TB screening behavior.

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