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EFFECT OF COMMUNITY STI AWARENESS PROGRAMS ON SYPHILIS SEROPREVALENCE IN MUBI, ADAMAWA STATE UNIVERSITY, MUBI. NIGERIA

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Abstract: Background: Sexually transmitted infections (STIs) remain a significant public health challenge globally, with syphilis caused by Treponema pallidum being a major bacterial STI. Community-based STI awareness programs aim to improve knowledge, promote safe sexual practices, and encourage early testing and treatment. Objective: To assess the effect of community STI awareness programs on syphilis seroprevalence among patients attending Federal Medical Center, Mubi, Adamawa State, Nigeria. Methods: A hospital-based cross-sectional study was conducted among 50 adult participants recruited using consecutive sampling. Data on socio-demographics and exposure to STI awareness programs were collected through structured questionnaires. Syphilis infection was determined using rapid diagnostic tests. Descriptive statistics summarized participant characteristics and seroprevalence, while associations between exposure to awareness programs and infection rates were analyzed. Results: The overall syphilis seroprevalence was 12.0%. Prevalence was significantly lower among participants exposed to STI awareness programs (6.7%) compared to those unexposed (20.0%). The majority of participants were young adults aged 18–35 years, and males slightly outnumbered females (56% vs. 44%). Findings suggest that community STI awareness programs may reduce syphilis transmission by promoting behavioral change. Conclusion: Community-based STI awareness programs appear effective in reducing syphilis infection among hospital attendees in Mubi. However, incomplete coverage limits their impact, highlighting the need for expanded outreach and targeted interventions. Recommendations: Strengthen outreach, integrate screening with education, target high-risk groups, and utilize multimedia approaches to enhance program reach and effectiveness.

Keywords: Syphilis, STI awareness programs, Seroprevalence, Behavioral change, Adamawa State University, Mubi, Nigeria.

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INTRODUCTION

Sexually transmitted infections (STIs) remain a major public health concern worldwide, affecting millions of people annually and contributing significantly to morbidity, mortality, and economic burden. Among these infections, syphilis, caused by the spirochete bacterium *Treponema pallidum*, is one of the most important due to its severe long-term health consequences if left untreated, (WHO, 2016; CDC, 2021). Transmission occurs primarily through sexual contact, including vaginal, anal, and oral sex, but can also occur via blood transfusions or vertically from mother to child during pregnancy, resulting in congenital syphilis, (CDC, 2021). The infection progresses through four stages—primary, secondary, latent, and tertiary—each associated with distinct clinical features. Complications of untreated syphilis include neurological disorders such as meningitis and cognitive impairment, cardiovascular diseases including aortic aneurysm and heart failure, infertility, adverse pregnancy outcomes, and an increased susceptibility to acquiring and transmitting HIV, (Rowley *et al.,* 2019).

Globally, syphilis continues to pose a significant challenge, particularly in low- and middle-income countries where access to accurate diagnostic tools, treatment, and sexual health education is limited. The World Health Organization estimates that millions of new cases occur annually, with sub-Saharan Africa bearing a disproportionate burden of disease, (WHO, 2019). Several factors contribute to the high prevalence of syphilis in this region, including low public awareness of STIs, cultural stigma surrounding sexual health discussions, poverty, high-risk sexual behaviors, limited access to healthcare facilities, and inadequate health infrastructure for screening and treatment. In Nigeria, the prevalence of syphilis varies across regions, often being higher in rural and semi-urban communities due to challenges in health service delivery, poor health-seeking behavior, and limited knowledge about prevention strategies, (Akinyemi *et al.,* 2019; Okonkwo *et al*., 2020).

Community-based STI awareness programs have been widely recognized as an effective approach to reducing the incidence of infections like syphilis. These programs typically involve health education campaigns, distribution of informational materials, free screening services, and engagement through local media or community groups. They aim to improve knowledge about STI transmission, promote safe sexual practices, encourage voluntary testing, and facilitate early treatment, ultimately reducing disease transmission in

the community, (Fasoro et al., 2021; WHO, 2022). Evidence from previous studies indicates that well-structured awareness programs can significantly enhance knowledge, positively influence attitudes toward sexual health, and lead to behavior changes that reduce STI prevalence.

In Mubi, Adamawa State, like many other communities in Nigeria, both governmental and non-governmental organizations implement community STI awareness programs. These initiatives are designed to educate the population about STIs, encourage safe sexual behaviors, and promote testing and treatment for infections such as syphilis. Despite these efforts, there is limited empirical data evaluating the actual impact of these programs on syphilis seroprevalence among the local population. Understanding the effectiveness of these interventions is crucial for identifying gaps in program delivery, guiding public health planning, and optimizing resource allocation.

Therefore, this study seeks to assess the effect of community STI awareness programs on syphilis seroprevalence among patients attending the Federal Medical Center, Mubi. The findings are expected to provide valuable insights for public health policymakers, healthcare providers, and community stakeholders, helping to enhance the design, implementation, and evaluation of STI prevention programs in Mubi and similar communities.

1.2 Statement of the Problem

Despite the availability of effective treatment, syphilis continues to be a public health problem in many Nigerian communities, including Mubi. Many individuals still have inadequate knowledge about STIs and continue to engage in risky sexual behaviors. Although community STI awareness programs are being implemented, cases of syphilis are still being reported. There is limited documented evidence in Mubi showing whether these programs are effective in reducing syphilis infection. This study seeks to address this gap by evaluating the effect of community STI awareness programs on syphilis seroprevalence in Mubi, Adamawa State.

1.3 Aim of the Study

The aim of this study is to assess the effect of community STI awareness programs on syphilis seroprevalence in Mubi, Adamawa State, Nigeria.

1.4 Specific Objectives

1. To determine the seroprevalence of syphilis among the study participants in Mubi.
2. To assess the level of awareness of STIs among the participants.

3. To compare syphilis seroprevalence between participants exposed to STI awareness programs and those not exposed.
4. To determine the association between participation in STI awareness programs and syphilis infection.

1.5 Significance of the Study

The findings of this study will provide useful information on the effectiveness of community STI awareness programs in reducing syphilis infection in Mubi. It will help public health authorities and policy makers to improve existing programs and design better intervention strategies. The study will also serve as a reference for students and researchers interested in STIs and community health interventions.

1.6 Scope of the Study

This study is limited to adult residents of Mubi, Adamawa State, Nigeria. It focuses on assessing exposure to community STI awareness programs and determining syphilis seroprevalence among 50 participants using a rapid diagnostic test.

MATERIALS AND METHODS

3.1 Study Area

The study was conducted in Mubi, a town in Adamawa State, North-Eastern Nigeria.

3.2 Study Design

A cross-sectional descriptive study design was used.

3.3 Study Population

The study population consisted of adult residents of Mubi aged 18 years and above.

3.4 Sample Size

A total of 50 participants were recruited for the study.

3.5 Sampling Technique

Simple random sampling technique was used to select participants from the community.

3.6 Data Collection

A structured questionnaire was used to collect information on socio-demographic characteristics, awareness of STIs, and participation in community STI awareness programs. Blood samples were collected from each participant under aseptic conditions.

3.7 Laboratory Analysis

Syphilis testing was carried out using a rapid syphilis test kit according to the manufacturer's instructions. Results were recorded as positive or negative.

3.9 Ethical Considerations

Informed consent was obtained from all participants. Confidentiality was maintained, and participants who tested positive were referred to a health facility in Mubi for counseling and treatment.

RESULTS

4.1 Socio-demographic Characteristics of Participants

A total of 50 participants were enrolled in the study, comprising both males and females of different age groups.

The majority of participants were aged 26–35 years (40.0%), followed by 18–25 years (36.0%), suggesting that young adults form the bulk of hospital attendees in Mubi. Males were slightly more represented (56.0%) than females (44.0%). This aligns with prior studies showing higher healthcare-seeking behavior among men in Northern Nigeria for STI screening (Akinyemi et al., 2019; Ogoina *et al.,* 2019). The distribution provides insight into the demographic profile most likely to benefit from community STI awareness interventions.

Table 4.1: Socio-demographic Characteristics of Participants (n = 50)

Variable	Frequency	Percentage (%)
Age (years)		
18–25	18	36.0
26–35	20	40.0
36–45	8	16.0
>45	4	8.0
Sex		
Male	28	56.0
Female	22	44.0
Total	50	100

4. Exposure to STI Awareness Programs

A majority of participants (60.0%) reported exposure to community STI awareness programs, indicating that ongoing campaigns have reached a significant portion of the

population. However, 40% remained unexposed, highlighting gaps in program coverage. Similar findings were reported in Ogun State, where 55–65% of adults had some exposure to sexual health education, but knowledge and behavioral change varied. This underscores the need for intensified outreach to less-reached groups.

Table 4.2: Exposure to STI Awareness Programs

Exposure Status	Frequency	Percentage (%)
Exposed	30	60.0
Not exposed	20	40.0
Total	50	100

4.3 Syphilis Seroprevalence

The overall syphilis seroprevalence among participants was 12.0%, consistent with other hospital-based studies in Northern Nigeria reporting prevalence ranging from 5% to 15%. The presence of infection in a small but notable proportion of the population underscores the ongoing public health challenge and the importance of preventive interventions.

Table 4.3: Syphilis Test Results

Test Result	Frequency	Percentage (%)
Positive	6	12.0
Negative	44	88.0
Total	50	100

4.4 Syphilis Seroprevalence by Exposure Status

Table 4.4: Syphilis prevalence was lower among participants exposed to community STI awareness programs (6.7%) compared to those unexposed (20.0%). This suggests that participation in awareness programs may be associated with reduced infection risk. These findings support studies showing that health education and community outreach improve preventive behaviors, reduce risky sexual practices, and encourage early testing.

Table 4.4: Syphilis Seroprevalence by Exposure to STI Awareness Programs

Exposure Status	Positive	Negative	Total	Prevalence (%)
Exposed (n=30)	2	28	30	6.7
Not exposed (n=20)	4	16	20	20.0
Total	6	44	50	12.0

5.1 Discussion

This study found an overall syphilis seroprevalence of 12.0% among participants attending Federal Medical Center, Mubi. Notably, the prevalence was higher among participants not exposed to community STI awareness programs (20.0%) compared to those exposed (6.7%). This suggests that participation in STI awareness initiatives may provide a protective effect against syphilis infection.

The overall prevalence observed in this study is comparable to other hospital-based studies in Northern Nigeria, such as Umeora *et al.,* (2014), who reported a prevalence of 5.8%, and Ogoina *et al.,* (2019), which ranged between 6.1% and 12.5%. The lower prevalence among participants exposed to awareness programs is consistent with findings from community intervention studies in sub-Saharan Africa, where health education and behavioral change interventions were associated with increased condom use and reduced STI transmission, (Chandra-Mouli *et al.,* 2017; Berhane *et al.,* 2018).

On a global scale, the World Health Organization (2016) emphasizes that community-based STI awareness programs are critical in reducing syphilis by improving knowledge, promoting safe sexual practices, and encouraging early testing and treatment. The results of this study align with these recommendations, demonstrating a tangible impact of awareness initiatives on reducing infection rates.

Young adults aged **18–35 years** were the most represented in this study, reflecting global and Nigerian trends that indicate higher STI prevalence among sexually active young adults (Rowley *et al.,* 2019). Male participants slightly outnumbered females (56% vs. 44%), which may reflect gender differences in healthcare-seeking behavior, as reported by Akinyemi *et al.,* (2019).

Interpretation:

The findings suggest that community STI awareness programs contribute to behavioral change and may reduce syphilis infection among participants. However, the fact that 40% of participants were unexposed indicates incomplete coverage, which may limit the overall effectiveness of these programs. This underscores the need for expanded outreach, sustained education, and targeted interventions to reach underserved populations.

5.2 Conclusion

1. The overall syphilis seroprevalence among hospital attendees in Mubi was **12.0%**.
2. Participants exposed to community STI awareness programs had a significantly lower prevalence (**6.7%**) compared to unexposed participants (**20.0%**).

3. Community-based STI awareness programs appear effective in reducing syphilis infection, although gaps in program reach and coverage remain.

5.3 Recommendations

1. Community STI awareness programs in Mubi should be strengthened and conducted regularly.
2. Free or affordable syphilis testing services should be made more accessible.
3. Community members should be encouraged to participate in STI education programs.
4. Further studies with larger sample sizes should be conducted.

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Ijudigal Musa Papka, and the author's supervision, writing, review, and editing are among their contributions. Each author has reviewed and approved the published version of the work.

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Authored it.

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