

RESEARCH ARTICLE

SEROPREVALENCE OF SYPHILIS IN MOGADISHU, SOMALIA: A TERTIARY HOSPITAL CROSS-SECTIONAL STUDY

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Manuscript Info

Abstract

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*Key words:-*Syphilis, Sexually Transmitted Diseases (STI), Epidemiology **Introduction**: Syphilis is a major global public health threat. It poses a considerable challenge to public health as indicated by the increased number of diagnosed cases. There are estimate of over 7 million new cases of person aged 15 to 49 annually and over 300,000 fetal and neonatal deaths attributed to syphilis. The world Health organization the 2022–2030 global health sector strategies outline new strategies for combating sexually transmitted diseases (STI).

Methods: This is a cross-sectional study carried out among patient attended in Kalkaal hospitals between June 2019 to July 2022 a period of three years. The study participants comprised of patients who attended the Outpatient department of the hospital and were screened for syphilis. More particularly, VDRL nontreponemal test was used in the screening phase and confirmation was carried out using FTA- ABS treponemal test. Before initiating screening among patients and the blood sample collections Informed consent were signed by patient and they were informed that the data will be used for research purpose. The study protocol was approved by Kalkaal Hospital Research Review Board. Data cleaning was done using excel. The data were analyzed using SPSS software version 25. The study concluded that syphilis was more common in men than in women. Rural areas had a greater syphilis prevalence than urban areas did. The data demonstrate a statistically significant difference between the patient age group and the results of the syphilis test. It is clear from this study's high prevalence of syphilis across genders, places of residence, and age groups that public health approaches to sexually diseases prevention and control needs to be reviewed.

Conclusion: The study concluded that syphilis was more common in men than in women. Rural areas had a greater syphilis prevalence than urban areas did. The data demonstrate a statistically significant difference between the patient age group and the results of the syphilis test. It is clear from this study's high prevalence of syphilis across genders, places of residence, and age groups that public health approaches to sexually diseases prevention and control needs to be reviewed.

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Introduction:-

Syphilis is a major global public health threat. It poses a considerable challenge to public health as indicated by increased number of diagnosed cases. There are estimate of over 7 million new cases of person aged 15 to 49 annually and over 300,000 fetal and neonatal deaths attributed to syphilis(1).

The world Health organization The 2022–2030 global health sector strategies outlines new strategies for combating sexually transmitted diseases (STI)(2). The strategy targets to reduce the new infections from 7 million annually in 2022 to 5.7 million and 0.71 million in 2025 and 2030 respectively. The 2020 number of congenital syphilis cases per 100 000 live births per year is estimated to be 425. Apart from reducing the new infections in the general population the strategy prioritizes the eliminations of congenital syphilis and the target of the strategy is reducing this number to less than 200 in 2025 and to less than 50 in 20 and to less than 50 in 2030.

Sub Saharan Africa study among pregnant women indicated a prevalence of 2.9%(3). Syphilis is a bacterial infection caused by the bacterium Treponema pallidum(4,5). This bacterium is notorious for its invasiveness and immune evasiveness. The clinical manifestation of the bacterium Treponema pallidum results from inflammatory response and replication spirochaetes and imitating those of other diseases. At first the diseases present no significant symptoms but as time goes the infection progresses invasively affecting the body systems with severe effects.

Transmission of syphilis occurs through person-to-person sexual contact, transfusion of blood and blood components donated by asymptomatic donors harboring the bacterium Treponema pallidum. A mother to baby transmission can occur during pregnancy.

Combating syphilis and other sexually transmitted diseases demands strong advocacy and community involvement to ensure that syphilis is prioritized as a global health agenda. Research is needed on congenital syphilis in developing countries. Despite simple diagnostic tests being available and effectiveness in treating the disease there is still need for combating the diseases and prevent reemergence, furthermore syphilis results in stillbirths and neonatal deaths in developing countries.

Acquired Syphilis is classified into two types, one being based on infection time; recent acquired syphilis and late acquire syphilis. The other being based on clinical manifestation and the stages of infection namely primary, secondary, and tertiary.

In the primary and secondary stages of syphilis is characterized with most of the symptoms. The tertiary stage may not show any symptoms thus giving a false impression of disease resolution, but the consequences may be present. The recently acquired syphilis may last for a year having the primary, secondary, while the late acquired syphilis phase is characterized by manifestation of tertiary syphilis.

Currently, there are few articles on syphilis in Somalia and this paper seeks to contribute to the literature by reporting the prevalence of syphilis among patients attended in a healthcare facility in Mogadishu Somalia.

Methods:-

Study design and Setting:

This is a cross-sectional study carried out among patient attended in Kalkaal hospitals between June 2019 to July 2022 a period of three years.

Study participants and variables:

The study participants comprised of patients who attended the Outpatient department of the hospital and were screened for syphilis. Data on patient, residence, gender, age and syphilis results were recorded on the system during the period.

Definitions and Diagnostic approach

Blood samples were collected from the participants and evaluated for the presence of syphilis. Serological test for the syphilis were carried out namely nontreponemal tests and a confirmatory test was conducted for positive results. More particularly, VDRL nontreponemal test was used in the screening phase and confirmation was carried out using FTA- ABS treponemal test.

Ethical approval:

Before initiating screening among patients and the blood sample collections Informed consent were signed by patient and they were informed that the data will be used for research purpose. The study protocol was approved by Kalkaal Hospital Research Review Board.

Data analysis:

Data cleaning was done using excel. The data were analyzed using SPSS software version 25. Results:-

The table1 below indicates the distribution of the data in terms of sex, age group, residence, and positivity in syphilis test. The data indicates that most of the respondents were female at 62.3% while males were 37.7%. Among different age groups 20-29, numbered 7850, 40.9%. The highest number of the participants were from Urban (77.2%), while rural numbered (22.8%). Additionally, 98.2% of the patients tested negative while the prevalence of syphilis was 1.8% (95% CI 1.6 to 2.0).

	Category	Frequency	Percent	95% Confidence Interval	
				Lower	Upper
Sex	Female	11956	62.3%	61.6%	62.9%
	Male	7249	37.7%	37.1%	38.4%
	Total	19205	100.0%	100.0%	100.0%
Age Group	<9	1242	6.5%	6.1%	6.8%
	10-19	2114	11.0%	10.6%	11.4%
	20-29	7850	40.9%	40.2%	41.5%
	30-39	3968	20.7%	20.1%	21.2%
	40-49	1309	6.8%	6.5%	7.2%
	50-59	1007	5.2%	4.9%	5.5%
	60-69	786	4.1%	3.8%	4.4%
	70-79	929	4.8%	4.5%	5.2%
	Total	19205	100.0%	100.0%	100.0%
Residence	Rural	4383	22.8%	22.3%	23.4%
	Urban	14822	77.2%	76.6%	77.7%
	Total	19205	100.0%	100.0%	100.0%
Syphilis Test	Negative	18864	98.2%	98.0	98.4
Results	Positive	341	1.8%	1.6	2.0

The study indicates that males had a higher prevalence of syphilis compared females with number of positive being 157(2.2%) and 184(1.5%) respectively. The data indicates a statistically significant difference between gender and syphilis diagnosis.

Rural residence had a higher prevalence rate for syphilis compared to urban residents with 247 (2.1%) and 157(1.7%) respectively. There was a statistically significant difference between the patient residence and result of the syphilis test.

The highest prevalence of syphilis was among patients aged 70 and above 119(12.8%), followed by those between 60-69, 64(8.1%) and 50-59, 37(3.7%) generally the prevalence of syphilis increased with age. The data depicts a statistically significant difference between the patient age group and the results of syphilis test.

	Category	Negative	Positive	Significance
Gender	Female	11772(98.5%)	184(1.5%)	0.001
	Male	7092(97.8%)	157(2.2%)	
Residence	Rural	14575 (98.3%)	247 (2.1%)	0.035

	Male	7092(97.8%)	157(1.7%)	
Age Group	9 and below	1236(99.5%)	6(0.5%	0.000
	10-19	2108(99.7%)	6(0.3%)	
	20-29	7821(99.6%)	29(0.4%)	
	30-39	3911(98.6%)	57(1.4%)	
	40-49	1286(98.2%)	23(1.8%)	
	50-59	970(96.3%)	37(3.7%)	
	60-69	722(91.9%)	64(8.1%)	
	70 and above	810(87.2%)	119(12.8%)	

Syphilis Among Women

The table below indicates the distribution of syphilis results among different age groups among females. The data indicates a statistically significant association between age and syphilis. The data reveals an increase in proportion of positive cases as age increases, with the highest being 10.9% for those between above 70 years and the lowest being less than 0.4% for age groups less than 20-29 years old. The average prevalence of the disease among women of reproductive age was 0.7%.

	Negative	Positive	
<9	441(99.5%)	2(0.5%)	443
10-14	1384(99.7%)	4(0.3%)	1388
15-49	8734(99.6%)	67(0.7%)	5699
50-59	460(94.7%)	26(5.3%)	486
60-69	362(90.7%O	37(9.3%)	399
70-79	391(89.1%)	48(10.9%)	439
	11772(98.5%)	184(1.5%)	11956

Syphilis Among Men

The table below indicates the distribution of syphilis results among different age groups among males. The data indicates a statistically significant association between age and syphilis. The data reveals an increase in proportion of positive cases as age increases. With the highest being 14.5% for those between above 70 years and the lowest being less that 0.4% for age groups less than 20-29 years old.

<9	795(99.5%)	4(0.5%)	799			
10-19	724(99.7%)	2(0.3%)	726			
20-29	2143(99.6%)	8(0.4%)	2151			
30-39	1512(98.5%)	23(1.5%)	1535			
40-49	629(98.3%)	11(1.7%)	640			
50-59	510(97.9%)	11(2.1%)	521			
60-69	360(93.0%)	27(7.0%)	387			
70-79	419(85.5%)	71(14.5%)	490			
	7092(97.8%)	157(2.2%)	7249			

Discussion:-

The distribution of the data in terms of sex, age group, residence, and positivity in syphilis test. The data indicates that most of the respondents were female at 62.3% could be explained by hospital seeking behavior among males' population as most of them do not seek medication or some use traditional means. Highest number of females could be explained by the fact that most of the patients aged between 20-29, 40.9%, which is a reproductive age. The highest number of the participants were from Urban (77.2%), while rural numbered (22.8%). Additionally, 98.2% of the patient tested negative while the prevalence of syphilis was 1.8%.

According to the study, there was a larger prevalence of syphilis in men than in women, with 157 (2.2%) and 184 (1.5%) positives, respectively. A statistically significant difference between gender and syphilis diagnosis is shown by the data. This finding is like one from a 2016 study conducted in the United States, where men had greater rates of primary and secondary syphilis than women (15.6 cases per 100,000 men) (1.9 cases per 100,000 females)(1). The study indicates that males had a higher prevalence of syphilis compared females with number of positive being

157(2.2%) and 184(1.5%) respectively. The data indicates a statistically significant difference between gender and syphilis diagnosis.

Syphilis prevalence rates for rural residents were 247 (2.1%) and 157(1.7%), respectively, higher than for urban residents. The location of the patient and the outcome of the syphilis test differed statistically significantly. This finding is supported by a study conducted in Ethiopia, where the authors found that the risk of syphilis was nearly three times higher in rural than in urban areas (COR = 3.48, p = 0.079). Contrary to this study's findings, the authors of the Ethiopian study found that women with a history of several sexual partners had an approximately five-fold increased chance of contracting syphilis (COR = 5.25, p = 0.018).

The highest prevalence of syphilis was among patients aged 70 and above 119(12.8%), followed by those between 60-69, 64(8.1%) and 50-59, 37(3.7%) generally the prevalence of syphilis increased with age. The data depicts a statistically significant difference between the patient age group and the results of syphilis test. Generally, syphilis was associated with age, a result reflected in previous studies(6). 48(10.9%) of the females aged 70-79 had the highest proportion of among female, their male counterparts of the same age had the highest prevalence of syphilis numbering 71(14.5%). Patients aged 60-69, 37(9.3%), this proportion was higher than that of males of the same age 27(7.0%).

In women data indicates a statistically significant association between age and syphilis with increase in proportion of positive cases increasing with age. The highest was 10.9% for those between above 70 years and the lowest being less than 0.4% for age groups less than 20 years old. The average prevalence of the disease among women of reproductive age was 0.7%. This result is lower than the Sub-Saharan Africa study conducted among reproductive age women which reported a 7.8% prevalence.

Analysis of Syphilis Among Men indicates a statistically significant association between age and syphilis like women. The data show that the highest prevalence was 14.5% for those between above 70 years and the lowest being less than 0.4% for age groups less than 20 years old.

Limitation

This study being a single center cross-sectional study, the reported prevalence might not reflect the actual incidence at community level.

Conclusion:-

The study concluded that syphilis was more common in men than in women. Rural areas had a greater syphilis prevalence than urban areas did. The data demonstrate a statistically significant difference between the patient age group and the results of the syphilis test. It is clear from this study's high prevalence of syphilis across genders, places of residence, and age groups that public health approaches to sexually diseases prevention and control needs to be reviewed.

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