SOKOTO JOURNAL OF GEOGRAPHICAL STUDIES (SJGS) *PRINT ISSN: 3043-551X*

Volume 1, 2024 (Maiden Edition)

TRENDS ANALYSIS OF REPORTED CASES OF TRACHOMA IN ISA LOCAL GOVERNMENT AREA OF SOKOTO STATE, NIGERIA

Lauwali Barau & Mustapha Sani

Department of Geography
Faculty of Social and Management Sciences
Sokoto State University, Sokoto, Nigeria

Corresponding Author's Email: lauwali.barau@ssu.edu.ng

Abstract

Trachoma is widely considered a disease that causes by many environment and socio-economic factors, leading to visual impairment or blindness on the infected persons. This study examines temporal distribution of the reported cases of trachoma in study area. It used both qualitative and quantitative methods. Two set of data were used: one was obtained from archives of the general hospital Isa town (2013-2022) and the other was through in-depth interview involving head and two others health officials in the study area. Line graph was used to show the trends and content analysis was employed to highlight the factors associated with trachoma in the community. The trends of the reported trachoma cases records across the study area reveals that, in 2013 the cases was very low up to 2016, but it increased in 2017, and also raised in 2018 and started falling in 2019 as well as fall drastically in 2022. The high reported cases in 2018 was attributed to the massive treatment of the disease sponsored by one of the richest person in the study area as narrated by the officials during the in-depth interview at general hospital. However, the results indicates that poor hygiene, open defecation, poor sanitation, lack of access to clean water and health care services, and poverty are the leading factor that causes trachoma in the area. The study recommends the is need for massive awareness campaigns and government should encouraged people to used different methods of waste handling and disposal, this well help to reduce cases of trachoma.

Keywords: *Trend, Analysis, Trachoma, Infection, Visual and Blindness.*

Introduction

Vision is the main sensory modality in humans, normal vision is important for the general development of individuals' in any community. Trachoma as a disease of the eye caused by infection with the bacterium chlamydia trachoma and it is among the major public health challenges in the world especially in developing countries, which lead to the blindness or visual impairment across the globe (World Health Organization WHO, 2022). This visual impairment or blindness results in a worsening of the life experience of affected individuals and their families in terms of education, future employment, personal and social welfare through out's one's life (Ayalew, 2016) . However, the infection spreads or transmitted through direct or indirect transfer of eye and nose discharges of infected person more especially young children who harbor the principle reservoir of infection. This means that, through personal contract (hands, clothes, bedding or hard surface) and by flies that have been in contact with discharge from the eyes or nose of an infected person (Tadesse, Wendimagegn & Imiru, 2021). With repeated episodes of infection over many years, the eyelashes may be drawn in so that they rub on the surface of the eye (distortion or the eye), with pain discomfort and permanent

damage to the cornea, a condition known as trichiasis, a clinical stage of trachoma where the eyelashes turn inwards and touch the eye as well as without surgical intervention, this condition can progressively damage the cornea and lead to visual impairment and irreversible blindness later in life (Burton, *et al* 2006, Hu, *et al* 2010) as quoted by Alambo, Lake, Workie & Wassieb (2020). Therefore, trachoma is believed to be a greater public health risk in dry, dusty and hot environments, although disease may be present anywhere that overcrowding and poor hygiene allow transmission (Kuper, *et al* 2003) as cited by Adogo (2019).

Globally, it is estimated that approximately 36 million people were blind and 217 million people had moderate or severe vision impairment worldwide (WHO 2022). According to Smith, *et al* (2013) as cited by Saleh (2021) l98 million people in a global scale are with trachoma endemic and they require access to the strategy of surgery to correct trichiasis, antibiotic to clear chlamydia trachomatis infection, facial cleanliness and environmental improvement to reduce transmission (SAFE Strategy). This trachoma disease is irreversible if concrete actions have not be taken, as it causes over 1.2 billion people live in trachoma endemic areas in the world like Africa, Latin America, South East Asia, the Eastern Mediterranean and the Western Pacific. In addition, 40.6 million people suffering from active trachoma and out of it 48.5% of the global burden are concentrated in five countries: Ethiopia, India, Nigeria, Sudan and Guinea. However, 8.2 million have trichiasis with 50% of the world burden are concentrated in only three countries: China, Ethiopia and Sudan (Paolo, Pascolini & Rose-Nussbaumer, 2008).

Besides that, in Nigeria the national blindness and visual impairment survey of 2007 estimated that about 1,092,028 Nigerians (0.78%) are blind and age is associated with increasing prevalence of all major blindness and severe visual impairment (Abdul, *et* al 2009) as quoted by Seleh (2021). It has been observed that the major blinding diseases in Nigeria are: cataract, glaucoma, trachoma, corneal disease, diabetic retinopathy, ocular trauma among others (WHO 2016). Nevertheless, since 1998 the international community has been committed to the elimination of trachoma as a public health problem by the year 2020, through the implementation of SAFE Strategy and Global Plan for 2014-2020 adopted by World Health Organization; member slates sets a global target or a 25% reduction in the prevalence of avoidable vision loss due to cataract and uncorrected refractive error by 2019 from the 2010 baseline level (WHO, 2003 and WHO, 2016).

Despite, the present of eyes hospitals and clinics in Sokoto state as well as eyes clinic in the study area, and there is no community based efforts to assess the magnitude of the problem in the area or to implement the SAFE Strategy. The disease is still persistent in Isa recent times and if not treated adequately or completely eradicated, it will perpetuate into the future generation. The productivity of such communities would also depend to a large extent on the general health condition of its people. The various cases of infection of trachoma among the people of the study area indicate that it is a major health problem. Therefore, research into the various areas surrounding trachoma will go a long way in providing substantial information regarding the spread and impact of the disease. Thus, the local government areas, state and federal government as well as international organizations (NGOs), will be better informed of areas of priority in their fight against blindness.

Several researches on trachoma has have been conducted in the world like Paolo, Pascolini & Rose-Nussbaumer (2008); Ayalew (2016); Adogo (2019); Tadesse, Wendimagegn & Imiru (2021); Saleh (2022) and Tuke, Etu & Shalemo (2023). Hence, there is no much studies conducted in the study area and this research examines temporal distribution of the reported cases of trachoma in study area (2013-2022). However, the study will be importance to demographers, population planners and policy maker in the health department of Isa local government area, Sokoto state and the nation in

general. In addition, the findings of this research will be benefiting the entire members of the societies, researchers of similar or related field and the study significantly contributing to the body of knowledge.

Description of the Study Area

Figure 1, Isa Local Government Area (LGA), is one of the oldest LGA in Sokoto State, and constitutes part of the eight local government areas that formed the Eastern Senatorial Districts of the state. It is located between latitudes 13°00'N and 13°12'l "N and longitudes 6°00'E and 6°24'26"E (Barau, Sahabi & Sani 2023). By its location, it shares boundaries with the Niger Republic to the east, Shinkafi LGA of Zamfara state to the south, Sabon Birni LGA to the north and Goronyo LGA to the west in Sokoto state. The LGA covers a total land area of about 2,158 square kilometres. The area Witnesses two distinct seasons which are the rainy and the dry seasons with the dry seasons in the LGA usually characterized by extremely hot temperatures with the average humidity level of 24% (Barau, Sahabi & Sani 2023).

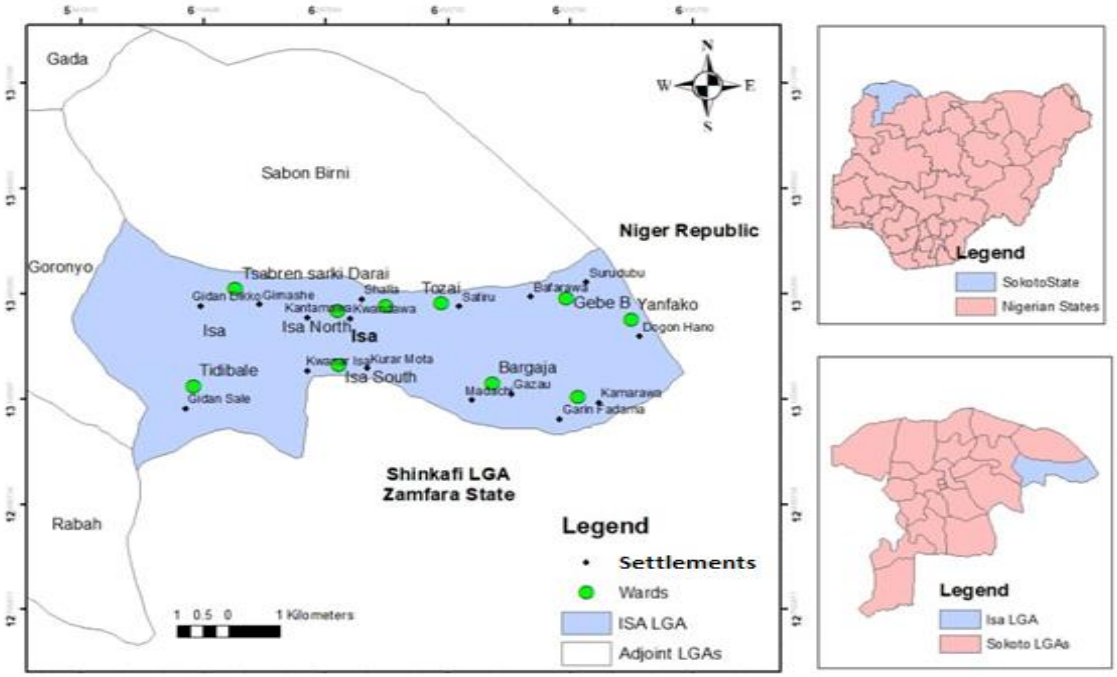

Figure 1: Map of the Study Area
Source: Authors (2023)

Similarly, based on the 2006 National Population Census Isa LGA has a population of 150,268 and it has a total projected population of 246,440 using Newman's (2001) formula. The population is made up of 120,263 males, accounting for approximately 48.8%, and 126,177 females, accounting for the remaining 51.2% of the total population with an average annual growth rate of 3% (Barau, Sahabi & Sani 2023). In addition, majority of the inhabitants in the area are being members of the Hausa and Fulani ethnic groups (Sokoto, 2006). Moreover, farming is the major occupation of the people in the area, with a number of crops such as millet, guinea corn, maize, rice, potatoes, cassava, groundnuts, beans for subsistence, while cotton and vegetables are cultivated for cash, and a number of domestic animals such as camels, donkeys, and rams are also reared and sold. Local crafts such as

blacksmithing, weaving, food processing and sale of cakes also play an important role in the economic life of the people in the area, state and nation at large (Sokoto, 2006).

Materials and Methods

The two sources of data (primary and secondary data) were used in this study. The primary data was obtained through an in-depth interview conducted with key officials of the Eyes Clinic office at General Hospital Isa, this interview was arranged with the head of Eyes Clinic and two other officials. The interview was coded and recorded using mobile phone based on the schedule of the in-depth interview. The in-depth interview was centered on issues related to trachoma endemic, its level of trends and factors associated with it in the study area. Nevertheless, the secondary data of the reported cases of trachoma records of ten years (2013-2022) in the study area was obtained from Eyes Clinic Unit at General Hospital Isa, Isa LGA (Table 1).

Finally, qualitative and quantitative data analyses were employed. The qualitative data analysis was done for the in-depth interview using content analysis. This content analysis refers to the systematic, replicable method for compressing many wards of text into fewer context of coding which is widely use in social sciences research (Stemler, 2000). Similarly, data collected from the centre (Eyes Clinic) for the reported cases of trachoma records in Appendix 1 were entered into Excel Microsoft (2010) application and the data were subjected to time series analysis to determine the trends of the records over a period of ten years (2013-2022).

Results and Discussions

Temporal Distribution of Reported Cases of Trachoma in the Study Area

The trends of the reported trachoma cases records across the study area, indicates that in 2013 the cases were very small up to 2016, but it increased in 2017 and shot up in 2018. However, it started falling in 2019 and fall drastically in 2022 (Table 1 and Figure 2). The high reported cases in 2018 was attributed to the massive treatment of the disease sponsored by one of the richest person in the study area as narrated by the officials during the in-depth interview at general hospital in the study area. They further explained that a lot of children and adult were affected with the disease. But not all report to hospital for investigation and treatment. If they can all report, the figures will exceed what we have for now as stated by the head of eyes clinic during the interview. This is due to poverty, lack of adequate access to hospitals and low level of awareness on the danger and way forward as narrated by the officials. Similarly, the Figure 2 illustrated the line of the best fit model and in all the years (2013-2022), only in 2014 and 2017 cases records indicate better fit base on stationary R^2 (0.0295). This implied a very positive relationship between the reported cases and the years, because the Y-axis is 3.0667 (Trachoma reported cases records) and X-axis + 6472.4 (years) this shows that as X increases then Y must increase. The officials stated that there is need for more awareness on causes and danger of this disease more especially in very remote areas of the study area, so that it can be reduce or even to eradicate it at all. This finding is similar with that of WHO (2022); Sahel (2021) and Tuke, Etu & Shalemo (2023) rural areas are at the risk for this dangerous disease the number of infected people is always increasing more specifically in developing countries of the world with high risk of the trachoma.

Table 1: Records of Reported Cases of Trachoma in Isa Local Government Area

Year	Cases
2013	281
2014	294
2015	272
2016	263
2017	295
2018	431
2019	247
2020	265
2021	263
2022	243
Total	**2854**

Source: Eyes Clinic Unit at General Hospital Isa (2023)

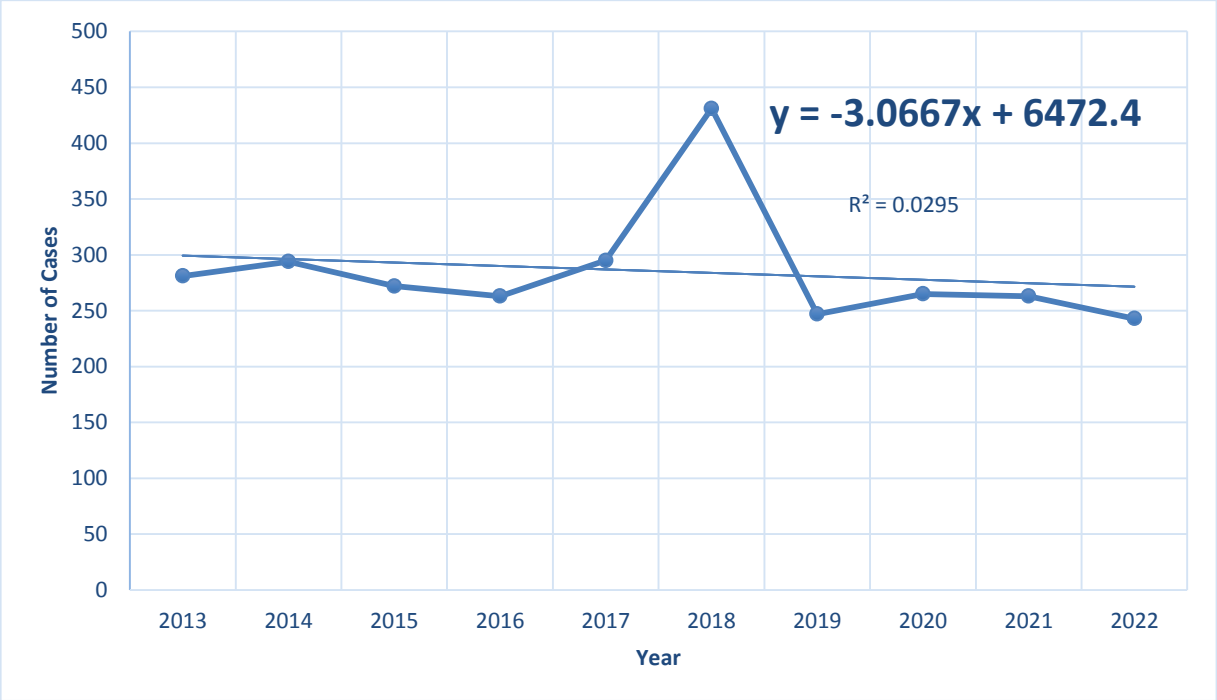

Figure 2: The Trends of Reported Cases of Trachoma in the Study Area
Source: Data Analysis, (2023)

This implies is significant level of variation between the years in terms of reported and treated cases of trachoma at the time of this research. Generally, this shows that a lot of children and adult women are infected with this disease and if adequate measures are not put in place it will continuous to speared not only in rural areas and even in urban areas in the state, because as it indicates in the temporal distribution and the line of best fit that shows strong positive relationship even with the reduce of reported cases from 2019- 2022. This study is in contrary with the study of Tuke, Etu & Shalemo (2023) who explored that, there is higher prevalence of trachoma reported cases from Ethiopia. But the work agreed with Adogo (2019) opined that, in 2010 active trachoma prevalence of 50% and after three round of treatment as repeat survey in 2013 it shows that, prevalence had fallen 6.6%.

Factors Influencing the Spread of Trachaoma in the Study Area

During the interview the officials observed that, the trachoma disease is more prevalence in rural areas than Isa town. Thus, cases are more reported, recorded and treated in rural areas in the study area, due to poor living conditions, poor hygiene and sanitation, and lack of access to clean and safe drinking water supply as well as lack of regular face washing and poor awareness on the effects of this disease especially to young children. Thereby, allowed the bacteria to infect and re-infect eyes of individuals living in trachoma endemic areas. However, one of the officials in the interview stressed the major environmental and socio-economic factors that significantly influence the transmissions of trachoma in the study area:

> *"Poor hygiene, open defecation, poor sanitation, lack of access to clean water, lack of access to health care services and poverty are the most leading factors"* (Head of eyes clinic).

This finding corroborates the studies conducted by Ayalew (2016) and Alambo, Lake, Workie & Wassie (2020) opined that, trachoma is largely found in poor rural communities in low income countries particularly in Sub-Saharan African. In addition, is similar with the work of Saleh (2021) who explored that, trachoma is believed to be a greater public health risk in dry, dusty and hot environments and in areas that are overcrowding as well as with poor hygiene, which contribute to the transmission of this disease.

Furthermore, officials narrated that the increase number of infected persons in the study area and if left untreated, this condition leads to the formation of irreversible opacities, with resulting visual impairment or blindness and women are blinded up to four (4) times as often as men. This is due to their close content with infected children and their resulting greater frequency of infection episodes. It also, highlighted by the officials during the in-depth interview that, the age at which this disease occurs depends on several factors including local transmission, intensity in very high endemic communities and it can occur in children like what is happen now in rural areas of Isa local government area. Though, on set of visual impairment between the age 30 and 40 years is more typical as narrated by officials. They added that blindness results in a worsening of life experience of affected individuals and their families in the study area, who area normally already amongst the poorest of the poor. This finding is in line with that of Paolo, Pascolini & Rose-Nussbaumer (2008) explained that trachoma is leading cause of infectious blindness worldwide and it is known to be highly correlated with poverty. It is similar with the study of Adogo (2019) opined that there is clear evidence from each measure that even within trachoma endemic communities' individuals and households affected by trachoma are significantly economically poorer than those that are not affected with it.

Conclusion and Recommendations

This is clear indication that trachoma remains an important public health challenge with many people still suffering from an eliminable disease, which needed to be reduced or eradicated not only in the study area but in the state, nation and world at large. The factors that cause the spread of trachoma should be critically studied and addressed. Trachoma is a proxy of inequality within communities and it could be used to target and evaluate interventions for health and poverty alleviation as well as reduce or eradicate it. Therefore, following recommendations should be considered: the health agencies and departments should make awareness campaigns on the danger and how to prevent people from the infection of the disease. Government should encouraged people on ways of waste handling and disposal. People should stop making defecation on open places. Government should help the poor infected people and provide all the necessary health and financial support in the area.

References

Adogo, C. (2019). *Determination of Factors Predisposing Children Aged 1-9 Years to Trachoma in Kirindon Division*. Trans Mara Sub-County, Kenya.

Alambo. M. M., Lake, E. A. Workie, S. B. & Wassie, A. Y. (2020). Prevelence of Active Trachoma and Associated Factors in Areka Town, South Ethiopia, 2018. *Interdisciplinary Perspective Infectious Disease 2020*, 8635191.

Ayalew, T. (2016). Prevelence of Trachoma and Associated Factors of Children 1-9 Years in Community led Total Sanitation and Hygiene Triggered Village and None Triggered in Girar Jarson Woreda, North Shoe, Oromia, Ethiopia. *Imp. J. Interdiscip. Res*, Vol. 2, Pp. 1444-1455.

Barau, L., Sahabi, N. G. and Sani, M. (2023). Temporal Analysis of National Identification Number Registration in Isa Local Government Area of Sokoto State, Nigeria: In B. L. Gadiga, L. A. Mbaya, I. Kim, Y. A. Umar, J. A. Ibrahim and I. Musa (Eds) Climate Change, Land Degradation and Security: A Geographical Perspective, *proceedings of the 1st North-East Conference of the Association of Nigerian Geographers (ANG), 2023*. Department of Geography, Gombe State University, Gombe State, Pp. 343-352, Vol. 1, No. 1, 2023, ISBN: 978-978-76596-6-3.

Newman, J. F. (2001). *Population Projection for Research and Development*. Retrieved from http://www.educationforallindia.com/New%20population-projection.pdf, 21/01/2023: 971–982.

Paola, S. M., Pascolini, D. & Rose-Nusssbaumer, J. (2008). Trachoma: Global Manitude of A Preventable Cause of Blindness. *British Journal of Ophthalmol*, Vol. 1, Pp. 1-17, December, 2008, doi:10.1136/bjo.2008.148494.

Saleh, H., A. (2021). Spatio-Temporal Analysis of Reported Cases`of Trachoma and Trichiasis in Kano State, Nigeria (2013-2019). Unpublished M. Sc, Dissertation, Submitted to the Department of Geography, Bayero University, Kano, Kano State, Nigeria.

Sokoto State. (2006).*"Consolidating the Grain of Democracy".* Al'umma Printing Press Ltd, Sokoto, Sokoto State, Nigeria.

Stemler, S. (2000). *"An Overview of Content Analysis". Practical Assessment, Research, and Evaluation*, Vol. 7, Article 17, DOI: https://doi.org/10.7275/z6fm-2e34 Available at: https://scholarworks.umass.edu/pare/vol7/iss1/17.

Tadesse, A., Wendimagegn, T. & Imiru, W. (2021). Trachoma Prevention Practice among Mothers with Child Age Under-9 Years and Factors Associated in Rural District of Oromia Region, Ethiopia: Community Based Cross-Sectional Study. *Word J. Adv. Res. Rev*., Vol.10, Pp. 245-257.

Tuke, D., Etu, E. & Shalemo, E. (2023). Active Trachoma Prevention and Related Variables among Children in a Pastroralist Community in Southern Ethiopia in 2021: A Community-Based Cross-Sectional Study, *Am. J. Med. Trop. Hyg*, Vol. 108(2), Pp. 2052-260, doi:10.4269/ajtmh.22-0521.

World Health Organization. (2003). *Alliance for Global Elimination of Blinding Trachoma by 2020*, Report of 2nd Global Scientific Meeting on Trachoma, Genreva, 25th to 27th August, 2003, Geneva:WHO;2003 (WHO/PBD/GET.03.1).

World Health Organization. (2016). *Elimination Trachoma: Accelerating Towards 2020*, Available at: http://www.who.int/trachoma, Retrieved on 21st December, 2023.

World Health Organization. (2022). *Fact Sheets on Trachoma*, Available at: https://www.who.int/newsroom/fact-sheets/detail/Trachoma, 5th October, 2022, Retrieved on 20th December, 2023.