

# Perception of red eye among senior secondary students in Sagamu, Southwest Nigeria

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## ABSTRACT

**Background:** Red eye is a very common presenting complaint in clinical practice among all age groups, including adolescents. Health habits formed during adolescence is carried to adulthood and is often a consequence of their perception. This study, therefore, determined the perception of students toward the red eye. **Aim:** To determine the perception of red eye and its associated factors among secondary school students in Sagamu. **Methods:** A cross-sectional descriptive study was carried out among 1082 senior secondary school students in Sagamu local government area, using a semi-structured self-administered questionnaire. Data were analyzed using SPSS Version 20. Relevant descriptive and inferential statistics were calculated. **Results:** The mean age of respondents was  $15.27 \pm 1.48$  years. There were more females (54.8%) than males. Majority (81%) had heard of red eye, and this was mainly from neighbors; 58.4% felt they could not contact red eye from an infected person. About 35% would instill onion if they had a red eye. About 50.2% felt red eye could lead to blindness. Awareness of red eye was associated with age ( $P = 0.005$ ), but not with sex and religion. Among respondents, 95.5% and 96.2% had a poor perception as well as a poor attitude toward red eye, respectively. **Conclusion:** The perception and attitude of senior secondary school students in Sagamu to red eye is poor. Appropriate eye health education and promotional services, including periodic eye examination of students, should be carried out in school health services. Early presentation to eye care centers for its treatment should be encouraged.

**Keywords:** Red eye, secondary, students

## Introduction

Red eye is a common eye sign/symptom presenting to the general physicians, other eye care workers, and the Ophthalmologist. This symptom accounts for approximately 15% of consultations for ophthalmologists and 6% for general medical practitioners in Eastern Europe.<sup>[1]</sup> It also accounted for 40% of all outpatients seen in Bawku Hospital Ghana in 2004 and 10 District Hospitals in Pakistan.<sup>[2]</sup> In Nigeria, Lawan reported 14.8% of patients attending their teaching hospital eye clinic presenting with red eye.<sup>[3]</sup> Studies done in Port Harcourt and Ile-Ife in Nigeria

showed that red eye accounted for 19.61% and 54.9% of pediatric ophthalmic eye diseases, respectively.<sup>[4,5]</sup> A major cause of concern to health workers is the late presentation of patients with the condition at a standard health facility. Oftentimes, in developing countries such as Nigeria, individuals commence various forms of medications, both orthodox and traditional, which they consider as first aid measures. This has been shown to result in severe ocular complications, including blindness.<sup>[6]</sup>

The causes of red eye are many including mild to serious conditions that may threaten vision.<sup>[3]</sup> Some even are managed as emergencies when it is being treated by an Ophthalmologist. These include conjunctivitis, corneal ulcer, iritis, trauma, acute

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glaucoma, and use of traditional eye medicine (TEM).<sup>[2-4]</sup> By far, the most common cause is conjunctivitis which could be infective or allergic.<sup>[3,4]</sup> In a study done in Ile-Ife Nigeria, among pediatric age group, ocular trauma was the most common cause of red eye, followed by allergic conjunctivitis and infections of the eye and its adnexa.<sup>[5]</sup> Use of TEM has been found to result in sight-threatening conditions.<sup>[6]</sup> Early detection and treatment is often necessary to prevent blindness from the serious cases. However, in developing countries, individuals and communities often commence first aid before presenting themselves to the health practitioner. This attitude often results in serious ocular complications and even blindness.<sup>[6]</sup> Researchers in Ghana studied the pattern of eye care services sought outside the orthodox health system. Herbalists and chemist shop owners were frequently patronized by the general public. About 28% of the herbalists interviewed claimed to treat red eyes. Cataracts, eye injuries, and other ocular conditions were reportedly managed by herbalists, who often instilled the herbal mixtures directly into the eyes.<sup>[7]</sup>

The knowledge and attitude of a community regarding a disease often influence members' practices including health-seeking behavior. Studies carried out in developing countries of sub-Saharan Africa showed a sub-optimal level of knowledge, attitude, and perception of ocular conditions and eye health in general.<sup>[8-10]</sup> In Cape Coast, Ghana, a study of the eye care seeking behavior of the populace, showed 23.3% of respondents having practiced self-medication during the last episode of eye disorder whereas 5.5% visited a traditional healer. Only 32.5% reported at a health facility for the management of the last episode of an eye disorder. The main reason for self-medication among respondents was a poor perception of the severity of the ocular condition.<sup>[11]</sup> Abubakar<sup>[12]</sup> found 62.3% of secondary school students in Kano, having poor knowledge and 58.2% with a poor attitude toward ocular disorders, especially blindness and its prevention. In Limpopo Province of South Africa, the perception of ocular manifestation of HIV/AIDS was assessed among 2659 high school students with results showing a need for better health communication involving this population group. About 31% of respondents felt HIV infection could result in a red eye. Almost two-third (65.6%) of respondents, felt an ophthalmologist or an optometrist should be consulted for ocular problems whereas 16.5% felt traditional healers could be considered.<sup>[13]</sup>

The burden of ocular disorders among adolescents is oftentimes overlooked. Researchers in Ile-Ife, Southwest Nigeria, reported 49% of secondary school students participating in a screening exercise, to have allergic conjunctivitis; 6% had infective conjunctivitis. More females than males had one form of ocular disorder or the other. Among those with allergic conjunctivitis, only 12.5% had visited an eye specialist prior to conducting the research.<sup>[14]</sup> Adolescents account for a significant proportion of the world's population today. In addition, health habits formed during this period is often carried on to adulthood and passed to the next generation, which can be largely influenced by their perception and attitude toward disease conditions when in school. Early detection and quality treatment often positively influence

the outcome of an episode of red eye. Period of presentation at a health facility is dependent on several factors, including patients' knowledge and perception of the symptom involved. No previous study has examined the perception and practice of senior secondary (SS) school students in Sagamu, concerning the red eye. Findings on perception and practice regarding health and related conditions can be tools to provide education and treatment plans, which ultimately improve patient care and quality of life.<sup>[7]</sup> This study, therefore, planned to determine the attitude of SS school students in Sagamu local government to red eye. The result will be useful to health planners in Planning Interventional Programs to reduce blindness and visual impairment from red eye within the local government area (LGA), state, and the country at large and in the other developing countries. To the best of our knowledge, this is the first of such study.

## Methods

### Study location

Sagamu LGA is one of the 20 LGAs in Ogun State, Southwestern Nigeria. Sagamu is a peri-urban area consisting of 15 wards with a diverse population in terms of ethnicity, occupation, age structure, and socioeconomic status. A large proportion of the people are traders and unskilled workers. The town serves as a transit zone between the Southwest and South-South regions of the country.

### Study population

SS school students attending public secondary schools in Sagamu LGA were recruited into the study. SS-3 students were exempted from participating in the study because their final examinations were on-going and were thus unavailable.

### Study design

A cross-sectional, descriptive study was carried out among 1082 SS (SS) school students in Sagamu LGA.

### Sample size determination

Using the formula for descriptive studies and assuming a prevalence of 50% (since no previous study has been carried out on the subject matter in our environment) as well as a nonresponse rate of 10%, a sample size of 420 was calculated. However, this was exceeded, and 1082 students were recruited into the study.

### Sampling technique

Multi-stage sampling technique was used for selection of study participants. The first stage involved the selection of three wards from the 15 existing wards in Sagamu LGA by simple random sampling. The second stage involved the selection of one SS school in each of the preselected wards also by simple random sampling. The third stage involved the selection of three arms from the five existing arms of SS-1 and SS-2 in each school. These arms served as clusters. All consenting students in the selected arms were recruited into the study.

### Study instrument

A validated, semi-structured, self-administered questionnaire was used for data collection among the study participants. The questionnaire obtained information on sociodemographic data, perception, and attitude toward red eye from respondents.

### Data management

Data were checked for completeness and accuracy after each field day's work. Data were analyzed with IBM Statistical Package for the Social Sciences (SPSS) version 20 (IBM Corp., Armonk, NY). Perception scores were calculated and graded as good and poor. A score of 50% was graded as good whereas that <50% was graded as poor. Attitude scores were also calculated on a scale of 100%, with a good attitude being a score of 50% and above whereas a score of <50% was graded as poor. Relevant descriptive statistics were calculated and reported as frequencies and proportions. Chi-square test was used to test the association between categorical variables, with the level of significance (*P*) set at <0.05.

### Ethical considerations

Approval was obtained from the Zonal Education Office of the State Ministry of Education, Science, and Technology. Approval was also obtained from the principals of the selected schools. This study followed the ethical standards issued by the Nuremberg Code and the Declaration of Helsinki on research in humans. Informed consent was obtained from study participants. Participation was fully voluntary, and respondents were free to withdraw from the study if they so wished. Strict confidentiality was ensured throughout the course of the study.

## Results

Age ranged from 10 to 21 years. The mean age of respondents was 15.27 ± 1.48 years. The modal age was 15 years. The female students were 593 (54.8%) while males were 489 (45.2%) in the study. Many of the students were Christians (66.5%) and in SS-2 (51.1%) [Table 1].

Majority (81%) had heard of red eye and this was mainly from neighbors [Table 2] whereas 216 (19%) had not. Four hundred and fifteen (38.4%) did not know the cause of red eye, while 99 (9.1%) thought trauma was a cause, 147 (13.6%) infection, 73 (6.7%) allergy, 21 (1.9%) sunlight whereas other causes such as drugs forms 327 (30.2%). Two hundred and seventy-six (25.5%) knew that they can be infected by someone with red eye, 632 (58.4%) says they cannot be infected by someone with red eye whereas 174 (16.1%) did not know whether they could be so infected or not [Figure 1]. About 35% would instill onion when they have red eye [Figure 2], followed by urine (21.9%) and breast milk (12.9%). Other things that they were likely to instill are salt water (4.6%), sugar water (4.6%), and battery water (1.5%) whereas 19.4% will not use any of the substances. Only 0.3% do not know what they

will use if they have red eye. Though majority says that a doctor is the one that takes care of red eye, 24 says self, 19 says their parent, 55 says chemist, 58 nurses whereas 12 says a herbalist can care for red eye.

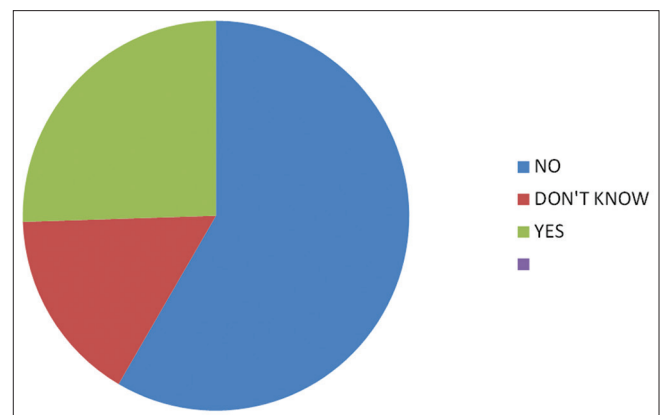
**Table 1: Demographic characteristics of respondents**

	Frequency	Percentage
Sex		
Male	489	45.2
Female	593	54.8
Religion		
Christianity	720	66.5
Islam	358	33.1
Traditional	4	0.4
Level of study		
SS-1	527	48.7
SS-2	555	51.3
Age (years)		
10-13	98	9.1
14-17	902	83.4
18-21	82	7.6

SS: Senior secondary

**Table 2: Source of respondent's information about red eye**

Variable	Frequency	Percentage
Awareness of red eye ( <i>n</i> =1082)		
Yes	876	81.0
No	196	18.1
Don't know	10	0.9
Source ( <i>n</i> =876)		
Neighbor	531	60.6
Parents	73	8.3
Siblings	50	5.7
Health worker	148	16.9
Media	74	8.4
Who treats red eye?		
Doctor	914	84.5
Nurse	58	5.4
Chemist	55	5.1
Self	24	2.2
Parent	19	1.8
Herbalist	12	1.1



**Figure 1: Can someone with red eye infect you?**

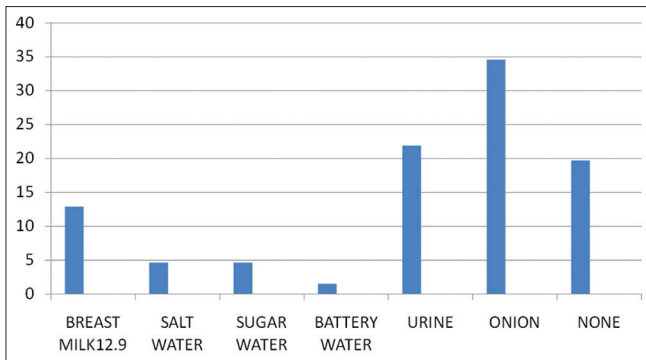


Figure 2: Traditional medications used in red eye

Awareness of red eyes was associated with age ( $P = 0.005$ ), but not with sex and religion [Table 3]. Perception grade was good in 49 (4.5%) and poor in 1033 (95.5%). Five hundred and forty-three (50.2%) felt that red eye could lead to blindness [Figure 3]. Perception of red eye was associated with age ( $P = 0.027$ ) and class ( $P \leq 0.001$ ). Attitude score was good only in 41 (3.8%). The factors associated with attitude toward red eye are shown in Table 3; this is statically significant for class ( $P \leq 0.001$ ).

### Discussion

Attitude refers to the feelings toward a subject, as well as any preconceived ideas; one may have toward it. Practice refers to the ways in which people demonstrate their knowledge and attitudes through their actions on the subject matter.<sup>[8]</sup> This study shows the feelings and practice of Secondary school students about red eye.

It is not surprising that many of the respondents have heard of red eye because epidemic conjunctivitis called “Apollo” is a very common cause of red eye in Nigeria and, especially the West Africa coast. In this study, majority heard about red eye from neighbors which show the impact of community on people’s health. That only 13.9% heard from health workers shows that there is a need for eye care workers to intensify health education, especially among students.

A large number did not know about what could cause red eye. Only 13.6% were aware that red eye could be caused by infections which may also influence their attitude to red eye. This might explain why more than half of the students say they cannot be infected by someone with red eye. It is comparable to findings from Limpopo, South Africa, where only 31.4% felt HIV infection and its sequelae could result in red eyes.<sup>[13]</sup> Most (96.2%) respondents’ attitude toward red eye was poor, a finding quite different from that reported in Kano, where 52.8% of students had a poor attitude toward severe ocular disorders.<sup>[12]</sup> The observed difference might be due to the fact that this study focused solely on red eyes whereas the study carried out in Kano assessed knowledge and attitude toward causes of blindness and its prevention.

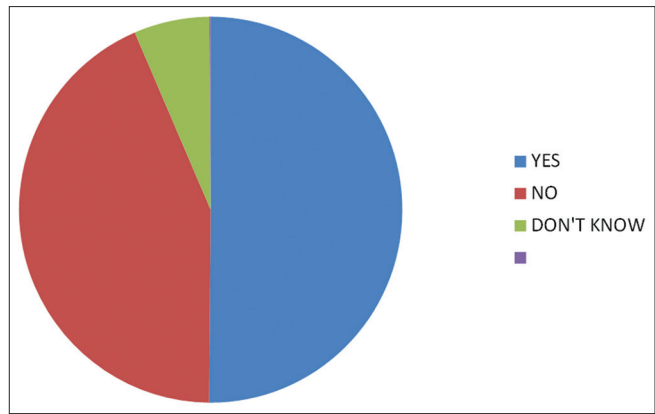


Figure 3: Can red eye lead to blindness?

Table 3: Factors associated with awareness, perception, and attitude toward red eyes

Variable	$\chi^2$	P
Awareness		
Age	42.633	0.005
Sex	5.465	0.065
Religion	1.917	0.751
Class	6.614	0.158
Perception		
Age	23.139	0.027
Sex	0.854	0.356
Religion	0.380	0.356
Class	35.471	<0.001
Attitude		
Age	17.369	0.136
Sex	1.260	0.136
Religion	0.349	0.840
Class	34.027	<0.001

$P > 0.05$  is not significant

Usually in the developing countries, people usually use traditional eye medication<sup>[9,10]</sup> and unprescribed medications to treat their red eye. This usually results in delayed presentation leading to blindness or visual loss. These medications that are being used for red eye as found in this study include onion, urine, breast milk, salt water, sugar water, and battery water. These can cause chemical conjunctivitis, infective conjunctivitis, especially gonococcal conjunctivitis when infected urine is used and if not detected and treated early, it can result in blindness. This finding also confirms the report of other researchers who have shown that people seek alternative eye care treatment instead of orthodox treatment with implications for ocular health.<sup>[7,15,16]</sup> There was a report of a usage of herbal preparation on the eye with resultant blindness.<sup>[6]</sup> Health education done in schools during assembly especially by eye care workers will go a long way to help reduce this among the students and in the communities as these children will, in turn, tell their parents about what they are taught at school. Furthermore, incorporation of school eye health program into the existing school health program will be of immense benefit.

Perception grade and attitude of this population were poor, this may mean that the perception and attitude to red eye, even though very common is low in the general population as the students are actually reflecting what they have learnt from their homes. Intensive effort to enlighten the population will therefore help to reduce blindness/visual impairment in our community. These enlightenment programs can be taken to the religious houses, i.e., mosques and churches for a wider coverage.

## Conclusion

We therefore conclude that secondary school students in Sagamu have poor perception and attitude to red eye. Appropriate eye health services and education should be included in school health services and early presentation to eye care centers for its treatment should be encouraged.

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## Conflicts of interest

There are no conflicts of interest.

## References

- Petrice I, Prost M, Popova A. The differential diagnosis of red eye: A survey of medical practitioners from Eastern Europe and the Middle East. *Ophthalmologica* 2006;220:229-37.
- Foster A. Red eye: The role of primary care. *Community Eye Health* 2005;18:69.
- Lawan A. Causes of red eye in Aminu Kano Teaching Hospital, Kano-Nigeria. *Niger J Med* 2009;18:184-5.
- Adio AO, Alikor A, Awoyesuku E. Survey of pediatric ophthalmic diagnoses in a teaching hospital in Nigeria. *Niger J Med* 2011;20:105-8.
- Onakpoya OH, Adeoye AO. Childhood eye diseases in Southwestern Nigeria: A tertiary hospital study. *Clinics (Sao Paulo)* 2009;64:947-52.
- Ayanniyi AA. A 39-year old woman with blindness following the application of raw cassava extract to the eyes. *Digit J Ophthalmol* 2009;15:1-4.
- Ntim-Amponsah C, Amoaku W, Ofosu-Amaah S. Alternate eye care services in a Ghanaian district. *Ghana Med J* 2005;39:19-23.
- Kaliyaperumal K. Guideline for conducting a knowledge, attitude and practice (KAP) study. *AECS Illumination* 2004;4:7-9.
- Ashaye A, Ajuwon AJ, Adeoti C. Perception of blindness and blinding eye conditions in rural communities. *J Natl Med Assoc* 2006;98:887-93.
- Al-Attas AH, Williams CD, Pitchforth EL, O'Callaghan CO, Lewallen S. Understanding delay in accessing specialist emergency eye care in a developing country: Eye trauma in Tanzania. *Ophthalmic Epidemiol* 2010;17:103-12.
- Ocansey S, Kyei S, Gyedu BN, Awuah A. Eye care seeking behavior: A study of the people of Cape Coast Metropolis of Ghana. *J Behav Health* 2014;3:101-6.
- Abubakar S. Knowledge and attitude of students of post-secondary institutions in Kano, Northern Nigeria towards the causes and prevention of blindness. *Niger J Ophthalmol* 2010;18:29-32.
- Melwa IT, Oduntan OA. The perception amongst a population of high school students in South Africa about ocular manifestations of HIV/AIDS. *S Afr Optom* 2012;71:117-22.
- Adegbehingbe BO, Oladehinde MK, Majemgbasan TO, Onakpoya HO, Osagiede EO. Screening of adolescents for eye diseases in Nigerian high schools. *Ghana Med J* 2005;39:138-42.
- Ayanniyi AA, Olatunji FO, Mahmoud AO, Ayanniyi RO. Knowledge and attitude of guardians towards eye health of primary school pupils in Ilorin, Nigeria. *Niger Postgrad Med J* 2010;17:1-5.
- Omolase CO, Fadamiro CO, Omolase BO, Adido J, Adepoju FG. Barriers to uptake of orthodox eye care in a rural Nigerian community. *Trop J Health Sci* 2007;14:23-5.