European Journal of Applied Sciences – Vol. 13, No. 01
Publication Date: February 25, 2025
DOI:10.14738/aivp.1301.18155.
Traore, O. Y., Dembele, F., Traore, K., Diarra, M., Kone, A. D., Sidibe, M. K., Sissoko, M., Kouyate, K., Traore, Y. M., Sanogo, S., Kamissoko, D., & Tepage, J. A. (2025). Frequency of Ophthalmological Disorders Among Soldiers on Operational Duty at the Ophthalmology Unit of the Medical Surgical Center of Bamako's Arms. European Journal of Applied Sciences, Vol - 13(01). 186-190.

Frequency of Ophthalmological Disorders Among Soldiers on Operational Duty at the Ophthalmology Unit of the Medical Surgical Center of Bamako's Arms

Traore, O. Y.
Unit of the Medical Surgical Center of Bamako's Arms

Dembele, F.
Unit of the Medical Surgical Center of Bamako's Arms

Traore, K.
Unit of the Medical Surgical Center of Bamako's Arms

Diarra, M.
Unit of the Medical Surgical Center of Bamako's Arms

Kone, A. D.
Unit of the Medical Surgical Center of Bamako's Arms

Sidibe, M. K.
African Tropical Ophthalmology
University Hospital Center (CHU-IOTA)
and Unit of the Medical Surgical Center of Bamako's Arms

Sissoko, M.
African Tropical Ophthalmology
University Hospital Center (CHU-IOTA)

Kouyate, K.
Unit of the Medical Surgical Center of Bamako's Arms

Traore, Y. M.
Unit of the Medical Surgical Center of Bamako's Arms

Sanogo, S.
Unit of the Medical Surgical Center of Bamako's Arms

Kamissoko, D.
Unit of the Medical Surgical Center of Bamako's Arms

Tepage, J. A.
African Tropical Ophthalmology
University Hospital Center (CHU-IOTA)

ABSTRACT

Introduction: The aim of our study was to determine the frequency of ocular disorders among military personnel on operational duty at the CMCAB Ophthalmology Unit, in order to ensure their adequate management and an improvement in their operational capacity. Patients and method: This were a cross-sectional, retrospective study conducted between January 1 and March 31, 2024 at the Army medical-surgical center in Bamako/Mali. Results: A total of 264 patients were examined during the study. The distribution of patients by rank was as follows: noncommissioned officers were the most frequent, accounting for 36.4% of cases, followed by non-commissioned officers for 34.1%. Visual function abnormalities were the most frequent. These were mainly ametropia, accounting for 81.9% of cases. Discussion: Studies on the frequency of ocular disorders in the military are few and far between, but we can cite that of DIALLO et al. KOKI G and colleagues found a clear predominance of functional pathologies, particularly ametropia, with a frequency of 22.17%, 37.4% (56.4% for our study). Conclusion: The ophthalmological conditions encountered are numerous and multiple in the military personnel seen at the Army medical-surgical center in Bamako/Mali. Identifying them in this study will enable us to prevent and manage them, and reduce their complications.

Keywords: ophthalmological disorders, CMCAB, military environment, Mali.

INTRODUCTION

Ocular affections are disorders or diseases of the eyes that can affect the various anatomical and histological structures of the eye (eyeball and its appendages). They constitute a health problem for military personnel, especially during operational engagements [1]. According to data published by the WHO in November 2004, some 161 million people worldwide suffer from visual impairment, including 37 million who are blind [2]. Yet 80% of visual impairment is preventable or curable [3]. The main causes of blindness are cataracts, glaucoma, refractive errors and military blindness [2]. The situation is most worrying in sub-Saharan Africa, where 1% of the population suffers from visual impairment, 5 times more than in developed countries [2]. The state of health of military personnel is a constant preoccupation for the success of their regal mission. Their visual health is of particular importance, as they may suffer visual damage in operational situations. Complications arising from certain ocular conditions can reduce a soldier's operational capacity. In general, few studies in the world, and in Mali in particular, are known about the ocular pathologies they suffer in operational situations. The aim of our study was to determine the ocular affections of soldiers in operational engagement at the CMCAB Ophthalmology Unit, in order to ensure their adequate management and an improvement in their operational capacity.

METHOD

Our retrospective cross-sectional study took place between January 1, 2024 and March 31, 2024 at the Army medical-surgical center in Bamako/Mali. Sampling was non-random and exhaustive, and the sample size was 264 patients. The study population was all military personnel seen in the ophthalmology department of the Army medical-surgical center in Bamako/Mali between January 2024 and March 2024. Military personnel who had received a complete ophthalmological consultation were included. Data were collected using a survey

form with pre-tested questionnaires. Data entry and analysis were performed using SPSS version 21 software.

RESULTS

A total of 264 patients were examined during the study. Figure 1 shows the distribution of participants according to rank. Non-commissioned officers were the most frequent, accounting for 36.4% of cases, followed by non-commissioned officers for 34.1%. Visual function abnormalities were the most frequent. These were mainly ametropia, accounting for 56.4% of cases (Table I).

Visual Function Abnormalities

Table I shows the distribution of patients according to grade and visual function abnormalities. The most frequent visual function abnormalities in non-commissioned men, non-commissioned officers and officers were ametropia, accounting for 81.9%, 61.1% and 55.5% of cases respectively.

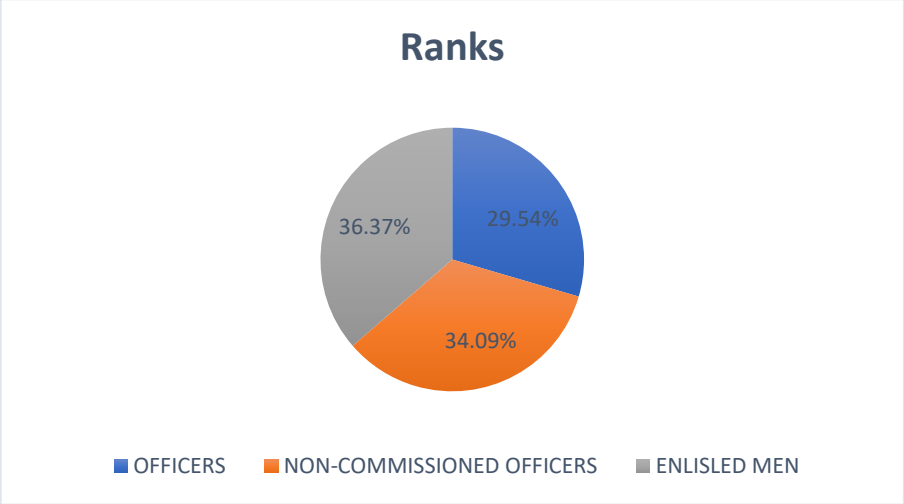

Figure 1: Distribution of patients by rank

Table I: Distribution of patients according to grade and adnexal damage

Damage to appendages	Grade					
	Officers		Non-commissioned officers		Enlisled men	
	N	%	N	%	N	%
Normal	72	92.4	78	89.8	15	15.6
Pterygium	3	3.8	3	3.4	21	21.9
Petrygoid	0	0	3	3.4	3	3.1
Subconjuntival hemorrhage	0	0	0	0	36	37.5
Allergic conjunctivitis	3	3.8	3	3.4	18	18.8
Chalazion	0	0	0	0	3	3.1
Total	78	100	87	100	96	100

In total, two types of appendix damage were identified in officers, three types of appendix damage were identified in non-commissioned officers and five types of appendix damage were

identified in enlisted men. The most common damage to the appendages among enlisted men was subconjunctival hemorrhage, i.e. 37.5%.

Table II: Distribution of patients according to grades and anterior segment damage

Anterior segment damage	Rank					
	Officers		Non-commissioned officers		Enlisled men	
	N	%	N	%	N	%
Normal	60	77	72	70.7	42	48.3
Cataract	12	15.4	18	17.7	0	0
Contusion	0	0	3	2.9	42	48.3
Corneal ulcer	3	3.8	3	2.9	3	3.4
Pseudophakia	0	0	3	2.9	0	0
Globe wound	3	3.8	3	2.9	0	0
Total	78	100	102	100	87	100

Cataracts were the most frequent anterior segment injury in NCOs and officers, accounting for 17.7% and 15.4% of cases respectively. Contusion of the globe was most frequent in non-commissioned officers (48.3%).

Table III: Distribution of patients according to grade and posterior segment damage

Segment damage Posterior	Rank					
	Officers		Non-commissioned officers		Enlisled men	
	N	%	N	%	N	%
Normal	53	66.2	51	57	66	68.7
Glaucoma	12	15	36	40	18	18.8
Hypertensive Retinopathy	12	15	3	3.3	12	12.5
Maculopathy	3	3.8	0	0	0	0
Total	80	100	90	100	96	100

The most common form of posterior segment damage was primary open-angle glaucoma. It was more frequent in non-commissioned officers, accounting for 40% of cases.

Table IV: Breakdown of patients by grade and type of war-related injury

War-related injuries	Rank					
	Officers		Non-commissioned officers		Enlisled men	
	N	%	N	%	N	%
Normal	70	100	84	93.3	84	87.5
War wounds	0	0	6	6.7	12	12.5
Total	70	100	90	100	96	100

The frequency of war casualties was 6.81% of cases.

DISCUSSION

The main aim of our study was to investigate the frequency of ophthalmological disorders among military personnel on operational duty at the CMCAB ophthalmology unit, using a retrospective cross-sectional study. In our study, the high frequency of non-commissioned

officers is explained by their greater numbers. Visual function abnormalities were dominated by ametropia. Ametropia was the most common ocular condition found in our study. Ametropia was more frequent in men, accounting for 56.43% of cases. Diallo et al (1) found a lower frequency of 22.17%. Koki G et al (2) found a frequency of 37.4% of cases. The ocular lesions found in our study have been noted in the literature (1,2, 3, 4). In our study, pterygium occurred in 10.22% of cases and cataract in 11.36%. Zlatar P and Stambuk V (5) found a higher frequency of pterygium in Africa, between 30-50% of cases. The frequency of degenerative pathologies such as pterygium and cataracts increases in a sunny environment (6). In our context, military personnel are continually exposed to sunlight. In our study, the incidence of glaucoma was 25%. In our study, the incidence of war casualties was 6.81%.

CONCLUSION

Ocular diseases are numerous and multifaceted among military personnel at the Army medical-surgical center in Bamako/Mali. Their identification in this study will ensure their prevention, management and the reduction of their complications. In this way, they will contribute to improving the army's operational capacity. In view of these results, we recommend that future researchers and decision-makers periodically screen for potentially disabling and blinding eye conditions.

References

1. André OE, Lucienne AB, Didier O, Sylviane M, Côme EM. Ocular pathology in children aged 6 to 15 years: hospital study in Yaoundé. Health Notebook. 2009; 19(2): 53-108.
2. Aminata GC. Epidemiological aspect of limbo-conjunctivitis endemic to the tropics at IOTA. Medicine: Bamako; 2008. 85p.
3. Organization for the Prevention of Blindness. Activity report. Paris: OPC; 2012.
4. 4.Diallo et al
5. Koki G., Mbogos nsoh c., Epée E., Omgbwa Eballe A., Bella la., Ebana Mvogo C. Profile of eye conditions 1in military environments in Cameroon. SOAO Review 2015; 01:46 – 52.
6. Weichel E D., Colyer M H., Ludlow S E., Bower K S., Eiseman AS. Combat ocular trauma visual outcomes during operations Iraqi and enduring freedom. Ophthalmol 2008; 115:2235-45.
7. Wong TY., Smith GS., Lincoln AE., Tielsch JM. Ocular trauma in the United States Army: hospitalization records from 1985 to 1994. Am J Ophthalmol 2000; 129:645-50.
8. Adeoye AO., Omotoye OJ. Eye disease in Wesley Guild Hospital, Ilesa, Nigeria. Afr J Med Med Sci 2007; 36 (4): 377-80.
9. Zlatar P., Stambuk V. Contribution to the operative treatment of pterygium. Ophthalmologica 1969; 159:380–388.
10. El Chehab H., Agard E., Ract-Madoux G., Dot C. Interest in optimized eye protection for troops exposed to the sun and altitude. Rev Int Services San Armed Forces 2013; 86 (2): 32-9.
11. R. Vignal. Ophthalmology activity at the Kabul medical-surgical group in 2007. medicine and armies 2010; 38 (1): 71-76.