

# Prevalence of Eye Trouble within There School Population of 6-12 Years of the City Kindu

Lukinga Jean-Paul\*

Senior consultant at the Public Service Reform and Rejuvenation project Congo

## ABSTRACT

This cross-sectional, descriptive study conducted from September 4, 2017 to April 3, 2018 in the city of Kindu with 72 students who were selected from three primary schools in the area, was initiated to determine the prevalence of visual disturbances in this category of school people followed in public establishments (EP KINDU VILLE, EP MANGOBO, EP MWANGA), thus knowing the impact of visual disturbances on the academic performance of students by using the SNellen scale, Optotypes and the rating grid for teachers. The general objective pursued by this work is to contribute to the reduction of disability resulting from refractive errors in children by identifying the socio-demographic characteristics of these children with visual disturbances; determine the risk factors and clinical aspects of ametropia (visual disturbances) in schools. The results show that 24 students out of 72 sampled exhibit visual disturbances, i.e. a prevalence of 33.3% among students with visual disturbances, we observed 50% of cases of myopia, 37.5% of hyperopia and 12, 5% cases of astigmatism. The proportion of visual disturbances was 37.17% for the female sex; against 30% for the male sex. Among the pupils who had mediocre scores, 85% belong to the category of pupils with visual impairments against 15% for pupils with normal visual acuity. The application of the Chi-Square test allowed us to make a statistical decision to reject the null hypothesis in favor of accepting the alternative hypothesis admitting the existence of significant differences between students with visual impairment and those who do not have visual disturbances. This difference, let us recall, Impact negatively on school performance and on the future workforce. This has been our modest scientific contribution.

## INTRODUCTION

Blindness throughout the world and in our medium of Kindu, as well as the impact of eye trouble on the school performance constitute a problem of public health. Numerical increase in these diseases, the loss of a significant labour, the ignorance of the population including the intellectual contreperformance due to the malvoyance; disturbances of the visions entrainant of the bad dimensions inducing with the school failure, situation generating of the stresses and the psychological traumatism at the children and their families.

Indeed, a great number of this eye trouble are not detected in time because of latency of appearance of disorders and the discretion of symptomatology; lack of the techniques of tracking and medical means human and professional. The not corrected

defects of refraction also constitute the principal cause of visual deficiency in the world, but easiest to avoid.

153 million the people in the world presents a visual deficiency due to not corrected defects of refraction (WHO 1).

In Chile, the prevalence of the cases in the children from 6 to 12 years varies between 5,8% (Maul 1) in 2000 years. In Nepal, the prevalence is 0,3% (Pokharel 1) in 2000 years. In China a prevalence of eye trouble to the children of school age is 26,1% (Zhao 1) in 2000 years. In Cameroun all precisely in Yaounde, a study was carried out on the tracking of eye trouble within the school population. On 422 children, 182 presented the eye trouble, that is to say a prévalence of 43,1% (Mrs ZAN ANGELE thesis of Doctor of Medicine 1) P44 in 2008. In Senegal all precisely in Dakar a study showed the prevalence of 33,03%

\*Corresponding author: Lukinga Jean-Paul, Senior consultant at the Public Service Reform and Rejuvenation project Congo; Tel: 0811671807, Email: jpwitha@gmail.com

Received: August 28, 2020; Accepted: August 30, 2021; Published: September 13, 2021

Citation: Paul L J (2021) Prevalence of Eye Trouble Within There School Population of 6-12 Years of the City Kindu. J Clin Exp Ophthalmol. Vol. 12.no.4.p231.

Copyright: © 2021 Paul L J. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

(Mrs ZAN ANGELE 2) in 2008. In Democratic Republic of Congo a study was led to Kinshasa shows a prevalence of 20% (<https://www.amessi.org> (1) 2016. In the Province of Maniema in particular, one attends a progressive evolution of visual pathologies in the young children. However, no true study is still undertaken to clarify the opinion on the width of eye trouble in the learning young people.

The problem which justifies present research resides of the fact at Kindu a great number of these disorders are not detected in time, the discretion of symptomatology; lack of the techniques of tracking and the human and professional medical means. The loss of a significant labour, the immobilism due to the malvoyance, the disturbances obliging not to carry on the activities of its profession more, entrainment even a high rate of illiteracy. The eye trouble in the school children can influence their school performances negatively, these disorders if they are not detected in time could also lead to blindness and become by there a problem of public health with like corollary the early loss of the youthful labour. These considerations were factors which prevailed with the motivation of this subject.

## METHODOLOGY

### Tally of the study

Our study was carried out with Kindu, chief town of the Province of Maniema and related to the prévalence of eye trouble to the school population of the town of Kindu; its population is estimated at the end of 2017 to 351242 inhabitants with a rate of schooling of 39,1% (UNESCO 2017).

### Sample

The population of our study was consisted of the pupils of the primary schools of the town of Kindu in three communes (Kasuku: E.p. Kindu City, Mikelenge: E.P. MWANGA and Alunguli: E.P. MANGOBO). 72 pupils and selected on the basis of criterion below:

### Criterion of inclusion

To be pupil of the elementary course registered and regular in the establishments concerned with this study.

### Criterion of exclusion

Pupils of the nursery school because of the difficulty of having information and the co-operation at this age.

### Not inclusion

Pupils of the elementary course with ocular pathology without being associated the eye trouble.

### Variable

A child who reads all the optotypes without hesitation in a vision of 6/6, without functional lesion nor organic noted (normal eye, i.e. Emmétrope).

A child who does not manage to read reads the optotypes or it with many hesitations, sometimes a pinching of the eyes, this one will be subjected to the test with hole stenopeïc so only the child improves his vision up to 6/6, the diagnosis of positive eye trouble (amétrope), to classify the types of eye trouble by the testing method subjective of glasses of DONDERS, which consists in taking positive glass to place it with dimensions patient and other side there is an eye patch, with the help of a dialogue, the inspector will change positive glass with negative glass then to observe the reactions of the patient. Surely examined must belong to a side, that is to say positive (case of hypermétrope or negative case of myopia or sometimes cylindrical glasses case of astigmatism or the patient will make confusion between the letter T and L.

Enough often the astigmatas has a problem of the axis horizontal which they confuse with the vertical axis.

### Type of studies and collection of the data

It is about a cross-sectional study, prospective with single passage in the primary education establishments public and private of the town of Kindu in RDC of September 04 2017 to April 03 2017 is one 7 months period. For the realization of this one, we took as a starting point the the investigation and the evaluation of vision for each pupil with the optotypes of Snellen.

### Course of the investigation

Two great parts: the interview of the pupil who is made help by his teacher and the technique of the evaluation of vision. The inspector gives to the child candies to gain his confidence; precise clear explanations initially at a short distance of the optotypes E of Snellen and that of the images to the little children (leatest); to place the pupil at a distance from 6m in a clear and well aired room, to dress the pupil in mounting with test, then to cover with cash an eye to the left eye; to make read the children the optotypes from top to bottom, of larger with the small characters and one notes the last line that the pupil can read and one records in the following way:

### Quotation

If the patient can read the first line, 6/60 are written;

If the patient can read before last line, it will have a vision of 6/6 or last line 6/5.

### Significance

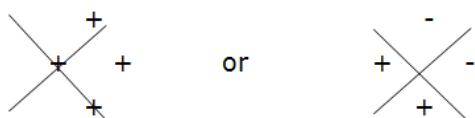
The figure top, 6 means that the patient is placed at a distance from 6m of the chart of reading. The figure of bottom, means the distance to which somebody with normal vision can read to 60. If the figure is 12, it can read what somebody with a normal vision can read with 12m.

Actually, the thickness and the size of the letters are calculated according to the size of the image on macked.

with meters	6 with meters	5 with 20 feet	Calculated into 10 2nd	Calculated into decimal
6/60	5/50	20/200	1/10	0,1
6/36	5/30	20/25	2/10	0,2
6/24	5/20	20/100	2,5/10	0,25
6/18	5/15	20/70	3/10	0,3
6/12	5/10	20/40	5/10	0,5
6/9	5/7,5	20/30	6/10	0,6
6/6	5/5	20/20	10/10	1,0
6/5	5/4	20/16	12/10	1,20

The vision among some patients is so bad that they can not even read the first line (6/60). That to make in this case: We can make bring the patient closer to the chart, one meter at the same time. If the patient can read the first line (6/60) but 5 meters only we write 5/60, if with 4 meters 4/60 and so on. If the patient cannot read first line 6/60, we can put our hand in front of its face by showing a number of fingers at 3 meters we say C.D. 3m, if it can count with 2 meters we say C.D. 2m and so on.

What to make if the patient cannot count the fingers even with 50cm? One must pass the hand in front of the eyes of the patient (silk certain that the part is rather clear). If the patient can detect the movement of the hands, M.M is written. Sometimes the patient cannot see the movement of the hands, in this case you direct the light of a torch in the eye so that it sees it. If the patient can see the light one must note two things: Can it detect from which the light comes (you ask that it show you where the light is); you test normally in four positions:



In the first case, the patient sees the light of any direction, but in the second it sees only the light which comes from in bottom and the with dimensions right.

**Data processing**

To allow us to have with the end of our study all information necessary and to give to us an account of reliability and exhaustiveness of the data, we carried out the sorting and quality control of the data collected and finally their analysis and treatment.

**SORTING OF THE DATA AND QUALITY CONTROL**

The data were sorted according to systematization of the lists of participants according to a variation of 20/5 after the sorting, we checked initially if the data were complete, precise and

correctly recorded; carried out the checking of the coherence of the data before the treatment.

**Treatment and analyzes data**

The treatment consisted of the distribution of the data being reproduced on the forms in various categorizations or classification, then in their coding. We used the frequency, the percentage and the test of Khi-square like statistical measurement.

**Presentation of the results**

**Table 1:** Prevalence according to the sex.

Sex	Manpower observed	Percentage
Girls	42	58,3
Boys	30	41,6
Total	72	100

**Table N°1 shows that the female sex prevails on the male sex, that is to say 58,3% against 41,6%.**

**Table 2:** Total Prevalence according to the ethnus group.

Tribe	Manpower observed	Percentage
Rega	24	33,3
Bangubangu	15	20,8
Kusu	12	16,6
Watoka kasongo	9	12,4
Others	9	12,4
Songola	3	4,1
Total	72	100

The analysis of this table N°2 shows that the Rega Ethnos group has a proportion élevée of provided education for with 33,3%, followed by Bangubangu 20,8%, Kusu 16,6%, watoka Kasongo 12,4%, other Ethnos groups 12,4% and Songola 4,1%.

**Table 3:** Total Prevalence of the pupils not presenting them problems of eye trouble.

Category	Manpower observed	Percentage
Emmetropie (without eye trouble))	48	66,6
Ametropie (eye trouble)	24	33,3

Total	72	100
-------	----	-----

After having evaluated vision we noted what follows: Cases of the pupils who did not pause of eye trouble (emmétropie) 66,6% against those which paused of eye trouble (Amétropies) 33,3%.

**Table 4:** Distribution of case of eye trouble (Amétropies) according to the sex.

Category	Eye trouble Amétropie	Normal vision Emmétropie	Total	Percentage
Girls	15	27	42	35,7
Boys	9	21	30	30
Total	24	48	72	33,3

It is deduced from this table that the cases of eye trouble (Amétropies) in the girls compared to the total staff complement of the girls account for 37,71% while the cases of the eye trouble (Amétropies) among boys compared to the total staff complement of the boys account for 30%, those makes it possible to have as a whole a prévalence of 33,3%.

**Table 5:** Prévalence of case of eye trouble according to the attack eyepiece.

Ok category	Manpower observed	Percentage
OD	3	12,5
OG	6	25
Bilaterality	15	62,5
Total ok	24	100

It is deduced from this table that 62,5% of ocular attacks are bilateral, while 25% of attacks are with the followed OG of 12,5% of the OD.

**Table 6:** Prevalence of case of eye trouble according to the Ethnos group.

Ethnique group	Eye trouble Amétropie	Normal vision Emmétropie	Total staff complement	Percentage
Rega	9	15	24	37,5
Bangubangu	9	6	15	60
WatokaKasongo	3	6	9	33,3
Others	3	21	24	12,5

Total	24	48	72	100
-------	----	----	----	-----

This table shows that the Bangubangu tribe is touched either 60%, followed by Rega 37,5% then Watoka Kasongo 33,3% and others with 12,5%.

**Table 7:** Distribution of the cases according to school results.

Interval by category	Eye trouble	Percentage	normal Vision	Percentage	Total
Poor ≤ 17 50%	≤ 17	85	3	15	20
Means ≤ 5 59%	≤ 5	23	17	77	22
Satisfactio n ≥ 60%	2	7	28	93	30
Total ok	24	33,3	48	67	72

This table N°7 shows that the pupils with eye trouble made the majority of the poor coasts is against 85% 15% of the pupils with normal vision (emmétropie), the pupils who made the average of coast they are those which have eye trouble against 23% 77% of the pupils with normal vision (emmétropie). Satisfaction for the amétropies 7% against 93% of the pupils with normal vision (emmétropies).

### Adoption of the test of square CHI

On is 72 pupils we identified 24 partially-sighted persons against 48 cases of normal vision, there a significant difference? With the threshold of 0,5 and 0,1.

### CALCULATION

Freque ncy Category	F°	%	Fe	%	Fo-Fe	(Fo-Fe)2
Ametropie (disorders aimed)	24	33	48	67	-34	1156
Normal vision (emmétropie)	48	67	24	33	+34	1156
						17,3
						35

Total	72	100	72	100	00	2312	52,3
-------	----	-----	----	-----	----	------	------

$$\chi^2 = \sum \frac{(Fo - Fe)^2}{Fe}$$

$$a. \frac{(33-67)^2}{67} = 1156/67 = 17,3 \Sigma \chi^2 = 52,3$$

$$a. \frac{(67-33)^2}{33} = 1156/33 = 35 \Sigma \chi^2 = 52,3$$

With the threshold of 0,5  $\chi^2$  obs = 52,3 >  $\chi^2$  of tals 3,8. With the threshold of 0,1  $\chi^2$  Obs = 52,3 >  $\chi^2$  = 6,6 with degree of freedom = 1 it is with die: (2-1) = 1 (2 lines - 1) (2 columns - 1) = 1.

Decision réjet of H<sup>0</sup> and acceptance of H<sup>1</sup> i.e. there is a significant difference between the pupils with normal vision (emmetropie and the pupils with malvoyance (ametropie). This difference impacts negatively on the school service and the future labour.

### Comments

The female sex prevails that the male sex with sex ration of 0,5. This is included/ understood owing to the fact that during the selection, the taking away was done according to the simple random sampling and the systematization of the positioning of name in the list of participants. The Rega tribe has a high proportion of provided education for compared to the whole of tribes. This will be able mainly to be explained membership of this community in this commune of Alunguli 90% after evaluation of vision, the prevalence of the ametropies (eye trouble) and 33,3%. This confirms really the presence of eye trouble (ametropie) in the school population of the town of Kindu. The majority of eye trouble touches more all the two eyes. This is explained quite simply why only the ametropies touch the binocular vision civil servant: 1.400.000 people.

The Bangubangu tribe is touched, followed by Rega not the others. This will be able to require one second study for the cause for purpose between the tribe bangubangu and the factors of risk of eye trouble (ametropie). Among the eye trouble. Myopia occupies the first place, then the hypermétropie, in end the astigmatism. This will be able to require another study finally to determine the epidemiologic profile. The majority of children with eye trouble (ametropies) had poor tales compared to the normal children with vision; this is explained by the fact that the pupil who has a fuzzy vision, an eye trouble will not see well the writings or table, consequently influences his manner of writing, to answer and on its performance especially if the parents and the teacher do not have the information of this eye trouble (emmetropies). This enabled us to apply the test of chi-square and to release the only one of differentiation. This differentiation impacts negatively on the school service and the future labour.

### Limit

The antecedents of the parents of the glasses as well as the factors of risk of eye trouble are not clearly ullicides owing to the fact that the comprehension of the pupils was difficult.

### Ethics

More the share, we requested the authorization to intervene in the establishments with the school inspection of primary

education teaching in the office of under division with the help of the document granted the UNIKI " scientific Certificate of research N°UNIKI/FACMED/ND / ASE/KB/2017 " by the vice senior in charge of research the 25/07/2017.

## CONCLUSION

Ultimately, the study that we have just carried out within the framework of research for the publication of this article, bearing on the study of prévalence of eye trouble in educational circle 6 to 12 years in the town of Kindu, for one period going from September 04 2017 to April 03 2018, led to the results which confirmed the assumptions formulated at the beginning of this document on the fact that, by means of the test of vision and the assumptions of Snellen allowed us to have a prévalence of 33,3% what joins corresponds to a study carried out in Senegal all precisely to Dakar (LAM) which showed 2) in 2008. Among the pupils who had poor coasts are these which one expressed the eye trouble 85% against 15 of those which have a normal vision. The application of test of chi-square showed that H<sup>0</sup> was rejected and acceptance of H<sup>1</sup> i.e. there are a significant difference between the pupils with eye trouble (amétropies) and those not having an eye trouble (emmétropies) say which this difference negatively impacts on the school service and the future labour - Have regard with what precedes, we hold with exaucer the various implied actors and decision makers, to consider these results and to lean there in order to reflect on the installation of the mechanisms of assumption of responsibility of eye trouble and their early trackings.

## REFERENCES

1. Wedner SH, Ross DA, Todd J, Anemona A, Balira R, Foster A. Myopia in secondary school students in Mwanza City, Tanzania: the need for a national screening programme. *British Journal of Ophthalmology*. 2002;86(11):1200-6.
2. Ghosh S, Mukhopadhyay U, Maji D, Bhaduri G. Visual impairment in urban school children of low-income families in Kolkata, India. *Indian journal of public health*. 2012;56(2):163.
3. Deshpande Jayant D, Malathi K. Prevalence of ocular morbidities among school children in rural area of North Maharashtra in India. *National Journal of Community Medicine*. 2011;2(2):302-4.
4. Agarwal D, Saxena R, Gupta V, Mani K, Dhiman R, Bhardawaj A, Vashist P. Prevalence of myopia in Indian school children: Meta-analysis of last four decades. *PloS one*. 2020;15(10):e0240750.
5. Dandona R, Dandona L, Naduvilath TJ, McCarty CA, Rao GN. Utilisation of eyecare services in an urban population in southern India: the Andhra Pradesh eye disease study. *British Journal of Ophthalmology*. 2000;84(1):22-7.
6. Naeem SM, Anwar AI, Khan AA. A Study on Prevalence of Ocular Morbidity in Primary School Children of Aligarh Muslim University, Aligarh. *Journal of Integrated Community Health*. 2016(2).
7. Rao GN, Sabnam S, Pal S, Rizwan H, Thakur B, Pal A. Prevalence of ocular morbidity among children aged 17 years or younger in the eastern India. *Clinical Ophthalmology (Auckland, NZ)*. 2018;12:1645.

