

Parental Knowledge and Attitudes when Managing their Child's Ametropia with Optical Correction

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Abstract

Introduction: Ametropias are represented by all situations where the optical system of the eye does not allow the image of an object to be focused on the retina.

Material and Methods: This was a prospective observational study of the descriptive type carried out at the application centre of the postgraduate diploma in ophthalmology. The aim of the survey was to map parents' perceptions of their children's optical correction of ametropia.

Results: Out of a total of 4987 consultations, 402 met our inclusion criteria, i.e. a frequency of 8.06%. The average age of the respondents was 41.38 ± 11.09 years with extremes of 17 and 75 years. Most (52.74%) of the parents were female, civil servants (29.60%) and married (74.13%). More than half (61.94%) of the parents were unhappy with the diagnosis and the high cost (50.98%) was the reason given. The parents' attitude was unfavourable following their children's diagnosis. Most parents advised (54.84%) or forced (25.80%) the child to accept glasses.

Conclusion: Ametropias are frequent pathologies in ophthalmological consultations. An information strategy for parents must be carried out in order to change their attitude.

Keywords: Ametropia; Optical Correction; CADESSO

Introduction

Ametropias are represented by all situations where the optical system of the eye is not able to focus the image of an object on the retina [1].

Ametropia is determined either by using dedicated devices (largely without the active participation of the person involved; objective refraction) or by asking largely standardised questions

while corrective lenses are held in front of the eye (subjective refraction) [2].

Uncorrected ametropia in children inevitably leads to severe complications, mainly strabismus and amblyopia. Similarly, headaches are also reported as a complication of uncorrected hyperopia or astigmatism [3].

Several factors can influence the lack of correction of ametropia in children. These include lack of awareness of the problem by

the child, family, community or public health authority; inability to afford refractive services; inadequate provision of affordable corrective lenses; and poor compliance with spectacles [4].

The quality of ametropia management depends on early optical correction and informed choice of optical equipment [5].

Vision impairment is a distressing physical condition with profound social and emotional implications, with consequences that affect not only the individual, but also the family and community [6].

Parents as primary caregivers make decisions about seeking health care services for their children. Understanding parents' perception and awareness of eye problems is important to understand why some parents seek care for their children while others do not [7].

The early years of life are very important in the development of the eyes and vision, and any disturbance at this stage can lead to severe visual impairment or even blindness [8].

According to WHO, there are 1.5 million blind children worldwide: 0.1 million in Latin America; 1.0 million in Asia; 0.3 million in Africa, and 0.1 million in the rest of the world [9]. In India: Nirmalan PK, *et al.* reported in their studies that visual impairment was not among the top ten eye problems cited in children [10].

In Swaziland: Sukati N V, *et al.* reported in their studies that out of 173 participants, 60.1% of the parents indicated that they had never taken their children for an eye examination and 31.7% felt that their children's vision was very good [11].

In Sudan: Alhasheed SH, *et al.* [12] noted that most (53.6%) parents believed that the cause of refractive error in children was poor nutrition.

In Nigeria: Ebeigbe J A, *et al.* [13] found that parents were aware of their children's eye problems, of which myopia was mentioned by 48.5% of participants.

Thus, parents' poor perception of their child's ametropia and frequently unfavourable attitudes to eye care motivated the choice of this study.

In this study, we set out to contribute to the knowledge of parents' perceptions of their children's optical correction of ametropia.

Materials and Methods

The centre for the application of the diploma of higher education specialised in ophthalmology (CADESSO) located within the Donka national hospital in the commune of Dixinn served as the setting for this study.

The material consisted of all parents with children undergoing optical correction for ametropia. We used the patient's individual file; a survey form; the consultation register and refraction register as data collection media.

This was a prospective observational study of descriptive type with a duration of six (6) months from 15 January to 15 June 2021.

We targeted all parents of children treated for ametropia at CADESSO.

All parents of children aged between 3 and 18 years, regardless of sex or origin, who were treated for optical correction of ametropia at CADESSO during the study period and who agreed to answer our questionnaire were included in the study.

We conducted an extensive recruitment process according to our selection criteria. Our study variables were qualitative and quantitative, divided into epidemiological, sociodemographic, clinical and therapeutic data.

Confidentiality has been a principle.

Results

During the study period, 4987 patients were seen; ametropia accounted for 8% or 402 cases. We divided the age of the patients' parents into age groups with regular ranges of 10 years and extremes between 17 and 75 years. The average age of the parents was 41.4 ± 11.09 years.

Among the children, we also divided them into age brackets with regular ranges of 4 years with extremes between 4 years and 18 years. The age range between 12 and 16 years was the most represented with 35%. The average age of the children was 14.24 ± 11.36 years.

Among the parents accompanying their child, we found a slight female predominance at 52.7% with a sex ratio of 1.11.

Among the children, there was a predominance of females at 63.6% against 36.4% for males with a sex ratio of 0.57.

According to the socio-professional category of the parents, civil servants were the most represented at 26.9% (n = 119 cases), followed by workers at 24.6% (n = 99 cases), shopkeepers at 23.8%, housewives at 13.6% and pensioners at 0.7%.

The majority of these parents were living as a couple in 74.1% of cases; single in 13.9% of cases; widowed in 7.4% of cases and divorced in 4.4% of cases.

According to the educational level of the parents, we had 133 parents with no schooling; 121 parents with secondary school level; 99 parents with university level and 49 parents with primary school level.

Reasons for consultation	Workforce	Percentage (%)
Visual blur	380	94,5
Photophobia	345	85,8
BAV	320	79,6
Watery eyes	318	79,1
Pruritus	240	59,7
Eye pain	195	48,5
Redness	70	17,4
Headache	65	16,1
Palpebral swelling	10	2,4
Tingling	10	2,4

Table 1: Distribution of 402 patients aged 5 - 18 years who consulted for ametropia at CADES/O according to the reason for consultation from 15 January to 15 June 2021.

Type of ametropia	Workforce	Percentage (%)
Astigmatism	38	9,4
Hyperopia	127	31,5
Hyperopia - Astigmatism	52	12,9
Myopia - Hyperopia - Astigmatism	1	0,2

Myopia	95	23,6
Myopia - Astigmatism	82	20,3
Myopia - Hyperopia	7	1,7
TOTAL	402	100

Table 2: Distribution of 402 patients aged 5 - 18 years who consulted for ametropia at CADES/O according to the type of ametropia from 15 January to 15 June 2021.

According to the perception when the diagnosis was announced to the parents 69.1% expressed dissatisfaction, 36.3% were happy to have at least one diagnosis and 1.8% thought it was a diagnostic error.

However, it should be noted that the vast majority of parents were in favour of wearing corrective lenses (87.3%) and 12.7% were not.

Reasons for unfavourable attitudes	Workforce	Percentage (%)
High cost	26	50,9
Dependency	16	31,3
Age	5	9,8
Risk of blindness	3	5,8
Rejection	1	1,9
Total	51	100

Table 3: Distribution of 402 patients aged 5 - 18 years who consulted for ametropia at CADES/O according to reasons for unfavourable attitudes mentioned by parents from 15 January to 15 June 2021.

These children accepted the wearing of corrective lenses in 84.5% of cases and rejected them in 15.4% of cases. The reasons they gave for rejection were headache in 61.2% of cases; blurred vision in 19.1% of cases; diplopia in 11.2% of cases and simple refusal in 8% of cases.

In the case of refusal to wear corrective lenses, some parents advised the children in 54.8% of cases; some obliged them in 25.8% of cases and 19.2% felt it was necessary to see the doctor again for better acceptance of the optical correction.

The majority of the parents 95.2% had no difficulty in being obeyed, but 4.8% had difficulty. To get children to accept wearing corrective lenses, 65.9% have introduced a reward system.

Discussion

We initiated a descriptive cross-sectional study over a period of 6 months from 15 January to 15 June 2021 at the CADESSO service in order to map the knowledge and attitudes of parents on the optical correction of their children's ametropia. It should be carried out in the five communes of the capital with the aim of taking into account the opinion of the parents of those who did not have the means to be consulted. The low socio-economic level of the respondents was the main limitation.

Of a total of 4987 consultations during this period, 402 met our inclusion criteria, i.e. a frequency of 8.06%. This is lower than Ulrich S [14] in 2016 in Germany who reported a frequency of 70%.

The average age of the respondents was 41.38 ± 11.09 years with extremes of 17 and 75 years. The majority of respondents were between 37 and 47 years of age. According to the results of the Demographic and Health Survey (DHS-2016), 46% of Guineans marry between the ages of 20 and 49. Hassan H., *et al.* [15] in 2020 in Iran reported a mean age of 22.81 ± 3.18 years.

A predominance of female parents was found in our study. In our context, the high representativeness of women is due to their availability compared to men on the one hand, the General Census of Population and Housing (RGPH3) stipulates that there are more women than men on the other hand. GYRR E., *et al.* [5] in 2020 in their study on the attitude of parents during the treatment of their children's ametropia by optical correction at the CHU-IOTA reported a female predominance of parents with 30.04%.

It appears from our study that almost all of our patients resided in urban areas. This result would be justified by the location of our study setting. Tyler H R., *et al.* [16] in 2016 in Korea came to the same conclusion with 79.1%.

With regard to the socio-professional status of parents, civil servants were the most important group in the sample. The centralisation of government activities would explain this result. Etienne M., *et al.* [17] in France in 2002 reported a domination of civil servants (50.23%).

Most of the parents who participated in the study were married. According to the results of the Demographic and Health Survey (DHS-2016), 46% of Guineans marry between the ages of 20 and 49. Sessy KLG [18] in Mali in 2019 found that housewives dominated her sample with a rate of 29.01%.

Most of the children's companions were not in school. The high rate of illiteracy in our country as in the sub-region would justify this result. This finding is very different from the work published by Kouass FX [19] in Côte d'Ivoire in 2016 in its distribution according to the level of education which showed that the majority of subjects, i.e. 54.21%, had stopped at the pre-school and primary cycles.

The average age of the children was 14.24 ± 11.36 years, with extremes of 4 and 18 years. The prevalence peaked in children aged 16 to 18 years (44.28%). Our data differ from a Saudi study on Prevalence of uncorrected refractive errors conducted by Nojood R A [20] in 2017 collected a mean age of 6.2 ± 1.9 years.

The sample was predominantly female with a sex ratio of 1.7. However, several studies report a predominance of girls. This is the case of Kavitha., *et al.* [21] in 2021 in India 55.6%.

More than half of the respondents were enrolled in school and essentially at secondary and primary level. This result is different from that of Andréa R H [22] in 2016 in his doctoral thesis in medicine in Antananarivo, who noted a predominance of primary level, i.e. 86.50%. Most children consulted for visual blur and photophobia. This result reflects the consequence of an imbalance between the different elements of the eye: length and/or powers and/or indices preventing focus on the retina. The results of a study by Dr. Traore A [23] in 2019 in Burkina Faso at the Yalgado Ouedraogo University Hospital concluded that a decrease in visual acuity was the most common reason for consultation, i.e. 38.71%.

The refraction performed by skiascopy and automatic refractometry had objectified hyperopia as a major refractive defect. Hyperopia is a refractive defect that is present at birth and progressively diminishes as a result of the emmetropisation process that takes place during growth. Exceptionally, there was a combination of myopia, hyperopia and astigmatism in the same patient. A study on Senegalese ametropia in hospitals conducted by Sow AS [24] in 2019 reported 58.18% cases of myopia, 18.18% cases of hyperopia and 36.57% of astigmatism.

Visual rehabilitation for almost all children was done with corrective lenses. The ametropias were generally minimal or moderate and it was necessary to start with these lenses which would be more affordable for them. Kouassi FX [19] in Côte d'Ivoire in 2016 reported that the visual rehabilitation of children with refractive errors all involved the use of optical lenses.

The mean time to optical correction was 11.77 ± 2.88 months with extremes of 6 to 24 months. A study on the epidemiology of refractive disorders in Morocco in 2017 led by Houda E [1] reported that the time to correction was longer the older the child.

More than half of the parents were unhappy following the diagnosis and the high cost was cited as the cause. As were their attitudes, which were also unfavourable following their children's diagnosis. This result could be due to a lack of knowledge of the disease by the parents. This observation has already been mentioned by GYRR E [5] in 2020 in his study at the CHU-IOTA who reported an unfavourable attitude with 27.27%, almost all of whom stated that glasses damage the eyes of children (93%).

Few children rejected the glasses for reasons of either headache or visual blurring respectively. This corresponds to the adaptation phase of the child to wearing glasses, which would justify this result. The study conducted by Assoumou P A [25] in the province of Estuaire in Gabon in 2018 found that children did not see the need to wear corrective lenses permanently, which led them to reject them (66.28%).

As a result of the rejection of the struggles by the children, the parents have mostly advised or forced the child to accept. In our society, there is a doctrine that the child must obey its parents without any form of contradiction. An American series on child development and refractive errors in preschool children, Josephine O [26] in 2018 observes that parents were forced to educate children to accept.

Conclusion

Ametropias are represented by all situations where the optical system of the eye does not allow the image of an object to be focused on the retina. This study has shown that it is a frequent pathology that affects school-age girls much more. It also showed that parents had unfavourable attitudes, although they advised their children

to accept optical correction. However, parents found the cost of optical correction high. However, a more focused study on parental information strategy needs to be conducted in order to change parental attitudes.

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