Frequency of Non Strabismic Binocular Dysfunctions in a Population of School Going and University Going Students

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METHODS

PURPOSE

• Primary eye health screening is extremely important for school and university going students. Apart from refractive error, Non strabismic binocular dysfunctions (NSBVDs) were commonly found in such screenings.¹,²

• Only few Indian studies have reported about the frequency of NSBVDs in a community set up. Also till date, none of the study did not compare the frequency of NSBVDs between school and university going students.

• This study was performed to compare the frequencies of NSBVDs between school and university going students.

This cross-sectional study was performed in a community eye health examination set up at two schools and one university situated in Gurgaon district, Haryana from June 2019 to November 2019.

• Informed consents were obtained from school principals and university HODs before recruitment of participants.

• The examination environment was standardized and the examining optometrists were same for all three community set ups.

• A total of 480 students were recruited for school (n = 240) (age: 9 to 18 years) and university (n = 240) (age: 18 to 26 years) cohorts after preliminary eye examination which includes detail ocular and general history, measurement of visual acuity, refraction, anterior and posterior segment eye examination.

• Spectacles were prescribed for the participants with uncorrected refractive error. Participants were advised to visit after a minimum one-month adaptation period.

• A detailed binocular vision evaluation (Stereopsis, worth four dot test, cover test, Near point of convergence, positive and negative fusional vergence, vergence facility, near point of accommodation, positive and negative relative accommodation, lag or lead of accommodation test with monocular estimation method and accommodative facility) was performed for all students with already established standard clinical procedures.

• Preliminary eye examination and binocular vision assessment were performed in different visits (2 to 3 days gap) for all students to avoid the impact of tiredness due to prolonged protocol on the study outcomes.

• Student with best corrected visual acuity 6/6 and N6 were included in the study.

• Student with already diagnosed NSBVDs, Amblyopia, undergoing vision therapy, other ocular pathologies, any systemic disease and taking any oral medication were excluded from the study.

• The normative values for accommodation and vergence parameters and the diagnostic criteria for NSBVDs were implemented from Scheiman and Wick³ and Hussaindeen et al.⁴

RESULTS

• Statistically the frequency of NSBVDs, vergence and accommodative dysfunctions were not significantly different (p ≥ 0.2 for all) between two cohorts. However the difference in frequency of accommodative with vergence dysfunctions was significantly different (p < 0.002)

• In the category of vergence dysfunctions, frequency of convergence insufficiency was statistically significantly different between two cohorts (p = 0.02) between two cohorts. (Figure 2)

• In the category of accommodative dysfunctions, frequency of accommodative insufficiency (p = 0.05) and accommodative infacility (p<0.001) were statistically significantly different between two cohorts. (Figure 3)

CONCLUSIONS

• NSBVDs were found in both school and college students and they were referred to tertiary eye care hospital for further management.

• Binocular vision evaluation must be included in primary eye health screening protocol for both school and university going students particularly in a community set up.

REFERENCES


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