

# Hubungan amplitudo respon akomodasi dengan panjang aksis bola mata pada myopia fisiologis: Penelitian pada siswa pesantren madrasah tsanawiyah di Jakarta = Correlation between accommodative response amplitude and axial length in physiologic myopia: Study in religious boarding junior high school children in Jakarta

Amalia Y. Lestari Santoso, author

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## Abstrak

**Tujuan:** Untuk mengetahui prevalensi miopia fisiologis (miopia derajat ringan dan sedang) pada siswa pesantren madrasah tsanawiyah berusia 12-15 tahun serta pola amplitudo respon akomodasi dan panjang aksis bola mata pada miopia fisiologis dibandingkan dengan emetropia. Ingin pula diketahui hubungan antara amplitudo respon akomodasi dengan panjang aksis bola mata pada miopia fisiologis sebagai dasar pemberian kacamata bifokal untuk menghambat progresivitas miopia.

**Metode:** Penelitian cross-sectional terhadap 325 siswa dengan melakukan pemeriksaan refraksi subyektif dengan dan tanpa koreksi, refraksi sikloplegik, retinoskopi dinamik metode Nott untuk menilai amplitudo respon akomodasi dan biometri A-scan untuk menilai panjang aksis bola mata. Semakin besar amplitudo respon akomodasi berupa accommodative lag diduga akan mengakibatkan bertambahnya panjang aksis bola mata.

**Hasil:** Prevalensi miopia fisiologis didapatkan sebesar 23,4% dengan amplitudo respon akomodasi pada miopia lebih rendah dan panjang aksis bola mata lebih panjang daripada emetropia. Tidak terdapat hubungan antara amplitudo respon akomodasi dengan panjang aksis bola mata. Faktor sosiodemografi tidak mempengaruhi risiko terjadinya miopia.

**Kesimpulan:** Tidak terdapatnya hubungan antara amplitudo respon akomodasi dengan panjang aksis bola mata kemungkinan disebabkan desain penelitian yang bersifat cross-sectional tidak dapat menilai pertambahan panjang aksis bola mata tanpa dipengaruhi faktor genetik. Kemungkinan lain adalah adanya distribusi subyek yang tidak normal dan terdapat faktor lain yang berperan dalam terjadinya miopia.

.....**Purpose:** To study the prevalence of physiologic myopia (mild and moderate) in religious boarding junior high school children in Jakarta with age 12-15 years old and to evaluate the accommodative response amplitude and axial length pattern in physiologic myopia compared with emmetropia. To know the correlation between accommodative response amplitude and axial length in physiologic myopia that could lead to the progressive addition lenses therapy in preventing myopia progression.

**Methods:** Cross-sectional study in 325 school-age children. Measurement methods included subjective uncorrected and best corrected refraction, cycloplegic refraction, Nott dynamic retinoscopy to measure accommodative response amplitude and A-scan biometry for axial length measurement. Larger accommodative response amplitude which means larger accommodative lag refers to increasing axial length in physiologic myopia.

**Results:** Of these 325 children, 23.4% were myopic (-0.50 D or more) with larger accommodative response amplitude (larger accommodative lag) and longer axial length in myopia compared to emmetropia, but there was no correlation between accommodative response amplitude and axial length. Socio-demographic factor such as age and class, had no correlation with myopia development.

Conclusions: Larger accommodative response amplitude (accommodative lag) in children with more near work activities than ordinary school children had no correlation with longer axial length. It maybe due to the cross sectional data could not measure the axial length only in one session but must be followed to evaluate the axial growth rate. Possibly there was another factor related to the ocular growth in children cause myopia development.