

# The key informant strategy to determine the prevalence and risk factors of strabismus in school children in East Coast Malaysia: a community-based study

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## ABSTRACT

**Introduction:** Strabismus is a common childhood visual disorder. It can significantly affect visual development and academic performance if untreated. Early detection and intervention are crucial, but access to specialised eye care is often limited in resource-constrained settings. This is where key informant (KI) method plays a vital role. The key informant method gives less biased estimates of prevalence of childhood blindness/severe visual impairment than institutional based studies for the blind studies conducted in 2017. Teachers may be particularly effective KIs due to their relatively high educational attainment or their experience working with children. This study aimed to determine the prevalence of strabismus and its associated risk factors among school children in Kelantan, Malaysia, using the KI method. **Materials and Methods:** A cross-sectional study was conducted from June 2022 to December 2023 involving school children aged 7 to 18 years. Physical education teachers from each school were trained online as KIs to identify children with strabismus. One month after the training, the research team visited district education offices to examine the children identified by the KIs. **Results:** A total of 468 KIs were trained. The diagnoses of strabismus by KIs were in complete agreement with those by specialists. Strabismus was confirmed in 301 school children, with a mean age of 12.26 years (1.42). Among them, 157 (52.2%) were male, and 144 (47.8%) were female. The majority of cases were exotropia (244 cases, 81.1%), followed by esotropia (43 cases, 14.3%) and vertical gaze palsy (14 cases, 4.7%). The prevalence of childhood strabismus was 18.9%. Logistic regression analysis showed no significant association between strabismus and gender, parental education level, or prematurity. However, a positive family history of strabismus increased the odds by 5.2 times (OR 5.20, 95% CI: 2.337 to 7.009,  $p < 0.001$ ). A family income exceeding RM3000 was associated with a 45% lower likelihood of strabismus (OR 0.55, 95% CI: 0.33 to 0.92,  $p = 0.021$ ). **Conclusion:** This study highlights the effective use of the KI method for identifying strabismus among school children. The high level of agreement between KIs and specialist diagnoses underscores the reliability of this approach. Importantly, the study found a positive family history was a strong risk factor, significantly increasing the likelihood of strabismus. Conversely, higher family income was associated with a reduced risk. These findings suggest that targeted interventions focusing on children with a family history of strabismus and those from lower-income families could be beneficial in managing and preventing strabismus in this population.

**Keywords:** Key informant, strabismus, risk factors of strabismus