

Vision Impairment and Blindness in 50 Years Adults

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Opinion

It is estimated that 405 million people worldwide suffer from visual impairment (VI), with 76 percent of them suffering from a treatable or preventable cause, and the majority living in low-income countries with limited access to detection and treatment. SES has been linked to a variety of negative visual outcomes, including VI, and this relationship is exacerbated in rural areas. While some studies on the prevalence of VI and its associated risk factors have been conducted in the Brazilian Amazon, there are few studies for Peru, and even fewer have looked at the relationship between SES and VI. Furthermore, many existing studies failed to employ a composite, asset-based measure of socioeconomic status. Given the remoteness of communities and the relative inaccessibility of eye care, low socioeconomic status might be expected to have a particular impact on health outcomes in the Peruvian Amazon. In this study, we sought to determine the relationship between SES and VI in Peru's Alto Amazonas region, hypothesising that higher SES would reduce the risk of VI and blindness.

All analyses used visual acuity for the better Seeing Eye, which was classified using the WHO's International Classification of Diseases. Individuals with visual acuity less than 20/60 up to 20/400 were classified as

visually impaired, with those scoring 20/70, 20/100, and 20/200 classified as moderately visually impaired and those scoring 20/400 classified as severely visually impaired. Those who scored less than 20/400 (CF, HM, LP, NLP) were considered blind. A SES index was created for each household using principal components analysis (PCA). Because PCA works best when asset variables are distributed differently across households, assets owned by all or no households were excluded. SES variables with multiple levels of categorization were dichotomized (e.g., type of floor converted into presence or absence of wooden floor, dirt floor, or brick floor). The statistical methods used to convert survey questions into a SES score have previously been described.

To account for differences in the units of measurement for each variable, the PCA in this study was performed using singular value decomposition of the centred and scaled data-matrix (e.g., quantitative variables like number of birds were given equal weight as binary ownership variables). Each household's first principal component score was assumed to be a measure of SES and was standardised to a mean of 0 and standard deviation of 1. The households were then divided into socioeconomic terciles, with the top third assigned to the highest tercile, the bottom third assigned to the lowest tercile, and the remaining third assigned to the middle tercile. In sensitivity analyses, other thresholds for grouping SES were investigated.

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