Abstract

Purpose: The onset of presbyopia in middle adulthood results in potential losses in productivity among otherwise healthy adults if uncorrected or undercorrected. The economic burden could be significant in lower-income countries, where up to 94% of cases may be uncorrected or undercorrected. This study estimates the global burden of potential productivity lost because of uncorrected functional presbyopia.

Design: Population data from the US Census Bureau were combined with the estimated presbyopia prevalence, age of onset, employment rate, gross domestic product (GDP) per capita in current US dollars, and near vision impairment disability weights from the Global Burden of Disease 2010 study to estimate the global loss of productivity from uncorrected and undercorrected presbyopia in each country in 2011. To allow comparison with earlier work, we also calculated the loss with the conservative assumption that the contribution to productivity extends only up to 50 years of age.

Participants: The economic modeling did not require the use of subjects.

Methods: We estimated the number of cases of uncorrected or undercorrected presbyopia in each country among the working-age population. The number of working-age cases was multiplied by the labor force participation rate, the employment rate, a disability weight, and the GDP per capita to estimate the potential loss of GDP due to presbyopia.

Main outcome measures: The outcome being measured is the lost productivity in 2011 US dollars resulting from uncorrected or undercorrected presbyopia.

Results: There were an estimated 1.272 billion cases of presbyopia worldwide in 2011. A total of 244 million cases, uncorrected or undercorrected among people aged <50 years, were associated with a potential productivity loss of US $11.023 billion (0.016% of global GDP). If all those people aged <65 years are assumed to be productive, the potential productivity loss would be US $25.367 billion or 0.037% of global GDP. Correcting presbyopia to the level achieved in Europe would reduce the burden to US $1.390 billion (0.002% of global GDP).

Conclusions: Even with conservative assumptions regarding the productive population, presbyopia is a significant burden on productivity, and correction would have a significant impact on productivity in lower-income countries.