

The impact of vision loss on health related quality of life in Trinidad & Tobago

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Introduction

- The older adult (≥40 years) population of Trinidad and Tobago have a relatively high prevalence of presenting distance vision impairment (VI) (12.1% <20/40 and ≥ 20/400) and blindness (0.8% < 20/400), for a high income country. In addition, 21.3% have near VI (<20/40 at 40cm with ≥ 20/40 for distance)
- 82.5% of presenting distance VI and blindness results from 3 potentially avoidable causes (cataract, uncorrected refractive error and diabetic retinopathy)
- The impact of presenting VI and blindness on health related quality of life (HrQoL), and associated quality adjusted life year loss (QALY), was unknown

Methods

- The National Eye Survey of Trinidad and Tobago 2013-2014 was a population-based, nationally-representative, cross-sectional survey that selected 4263 adults ≥ 40 years from 120 clusters, using randomized multistage cluster sampling with probability-proportionate-to-size methods¹
- Presenting visual acuity was measured according to a standardized protocol using LogMAR charts. Structured questionnaires obtained demographic, socioeconomics, medical and ophthalmic risk factors
- HrQoL was measured using the EQ5D-5 level instrument.² Raw scores (1 to 5) in each of 5 domains were transformed to utility values (0 = death to 1.0 = perfect health) using Trinidad and Tobago societal preference weights³
- Statistical analyses were performed using STATA 13.1. Using the svy suite we adjusted prevalence/mean estimates for the study design, weighted for non-response and selection probability, and applied post-stratification adjustment to the latest Census data (by municipality, gender and age group). We used multilevel single and multivariable logistic regression analysis to explore the odds of a score >1 in each of the five EQ5D domains. We used ordinary least squares multivariable regression analysis with robust standard error estimation to estimate utility coefficients for QALY calculation.⁴
- Response rate: 2634 (61.8%) adults ≥ 40 years completed EQ5D-5L

Results

Figure 1: Mean utility value (95% CI) plotted against 10-year age group, comparing men and women, with and without presenting distance VI (<20/40)

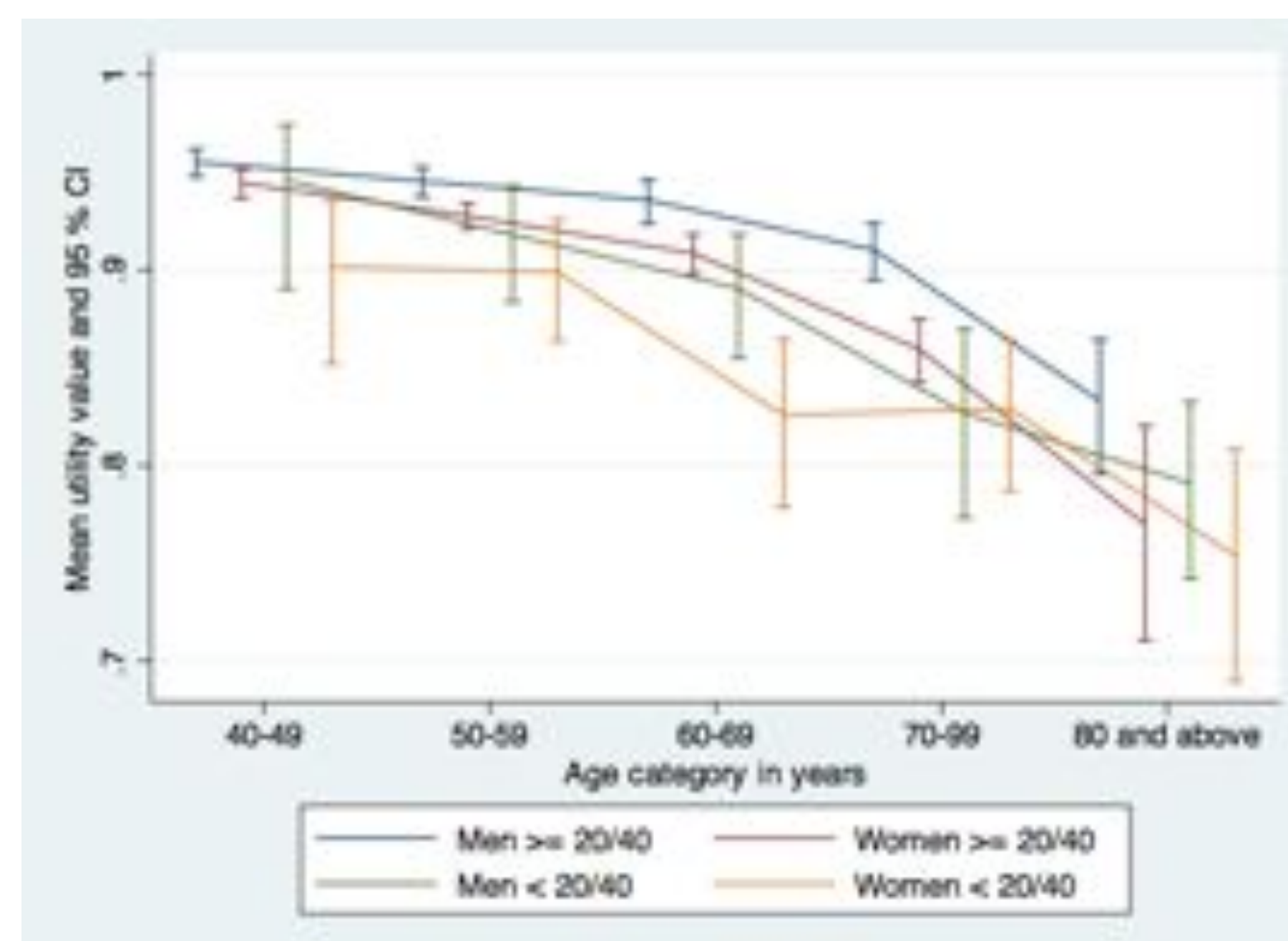


Figure 2: Utility coefficient plot for the multivariable model
The model was adjusted for study design, weighted for non-response and the probability of selection, and adjusted to the 2011 Census Population (by age, sex and municipality)

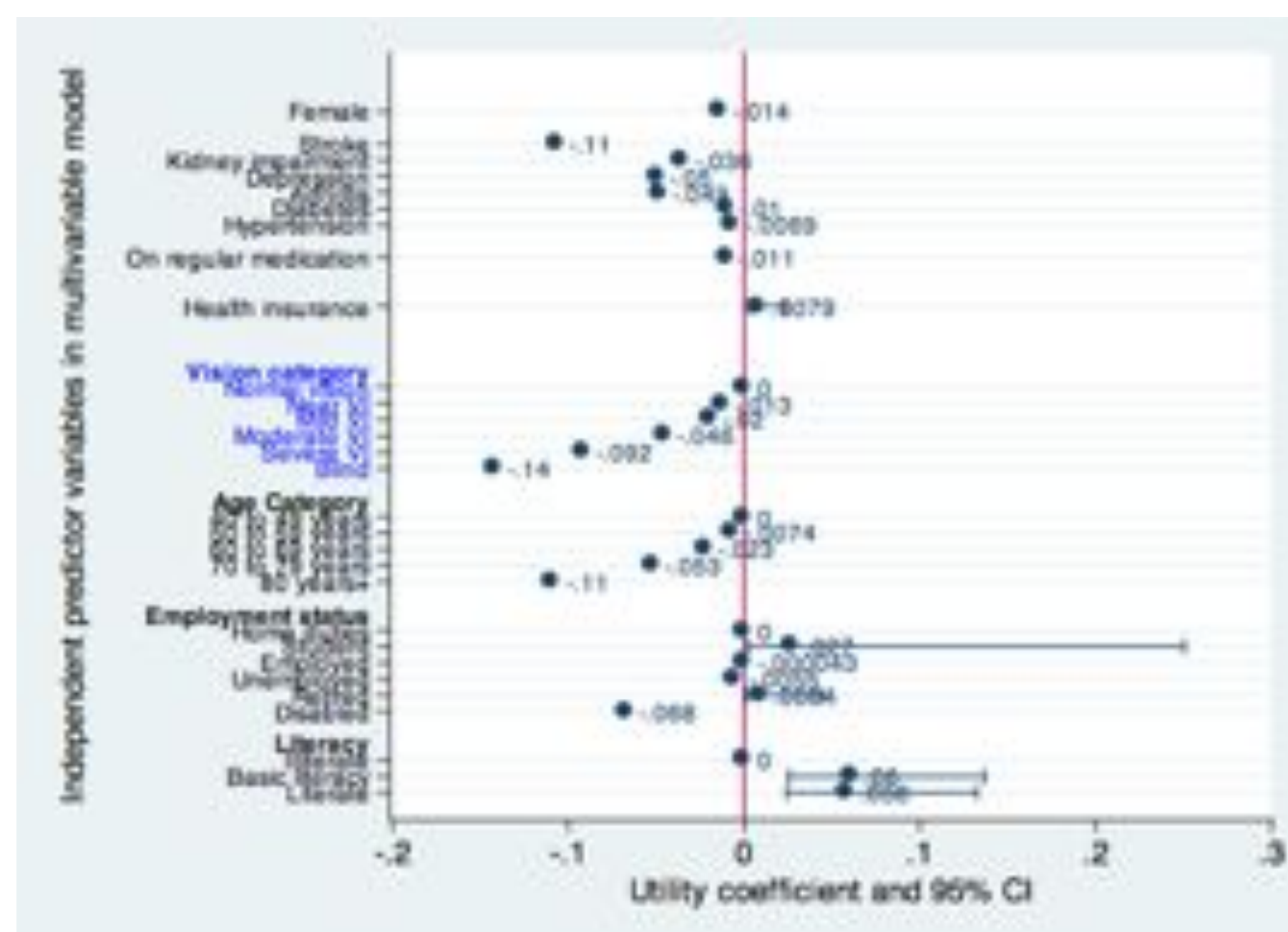


Figure 3: The impact of presenting distance VI on EQ5D-5L raw scores in each of 5 domains

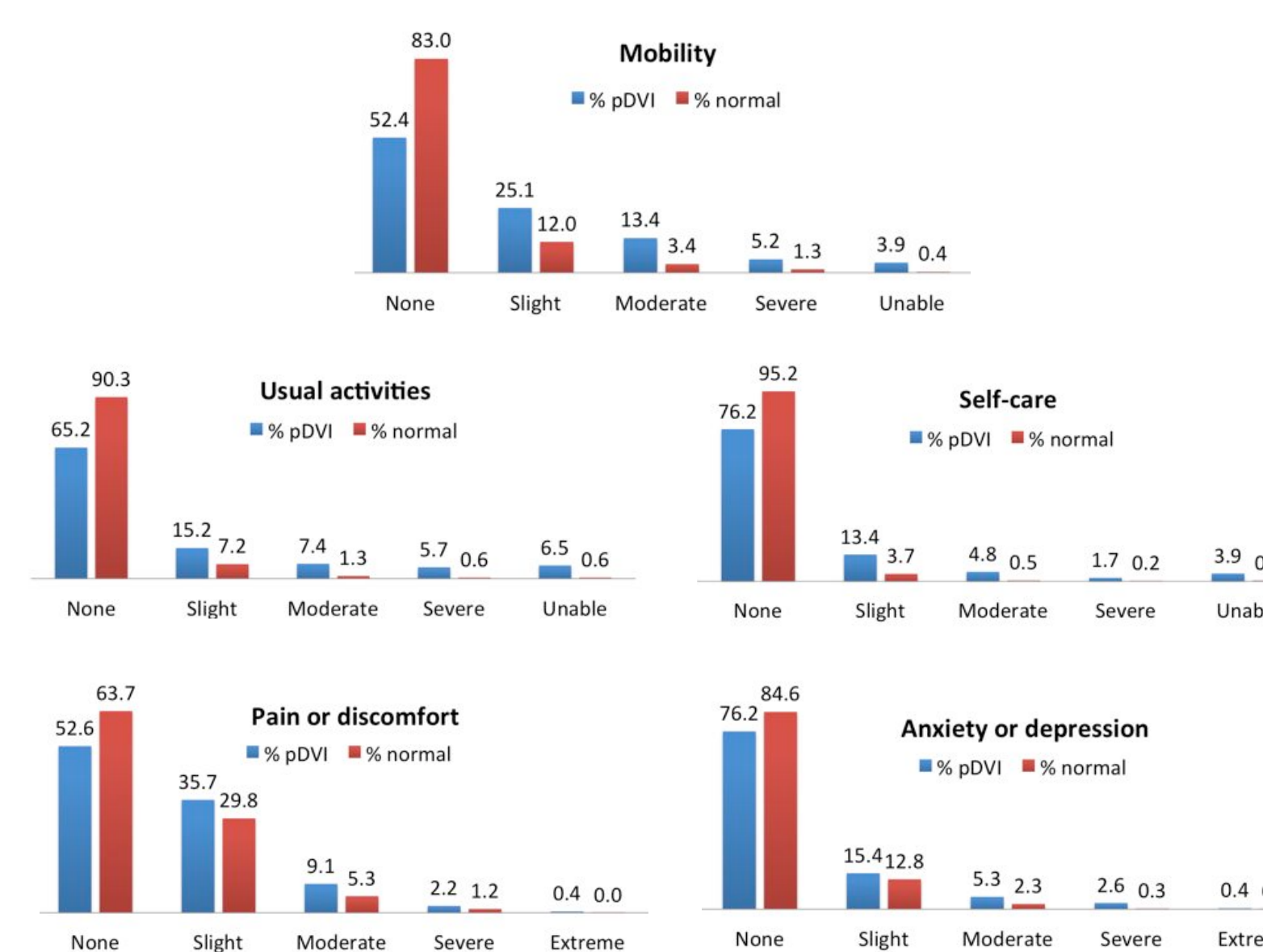
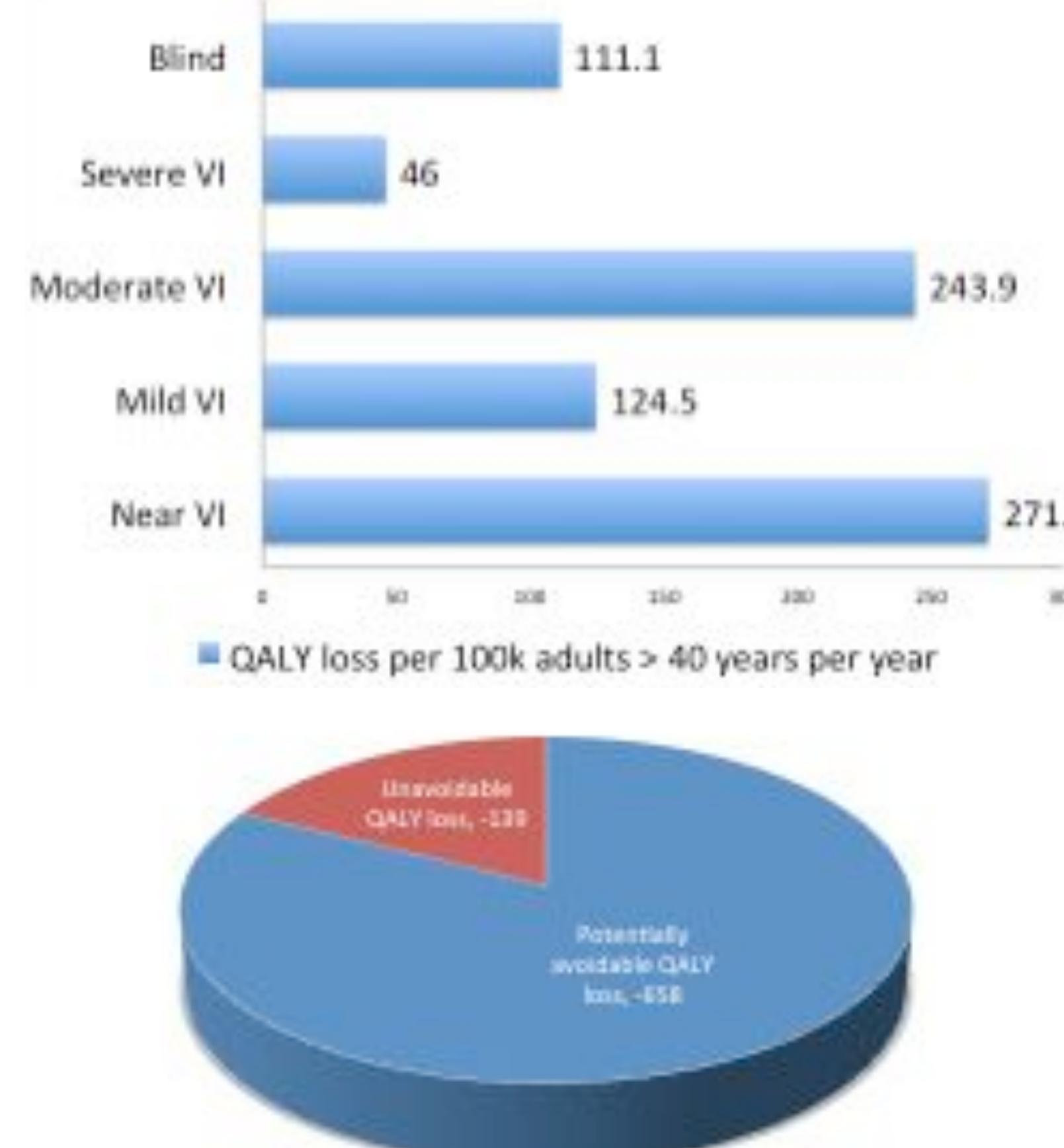


Figure 4: The health burden associated with presenting vision impairment in 2014 (per 100,000 people aged ≥ 40 years per year)



Key Findings

- Presenting vision impairment is associated with the loss of 797 QALY per 100,000 population (>40 y) per year in Trinidad and Tobago. Half of all QALY loss results from presenting near VI and mild distance VI
- A blind woman aged 40 years who lives to 75 years would lose an estimated 5.1 QALY during her lifetime on account of blindness (without discounting)
- Blindness had a greater impact on utility score (-0.14) than any other variable investigated in this study, including old age (-0.11 > 80 years) and previous stroke (-0.11)
- Significant predictors of reduced HrQoL in the multivariate model included age (OR 1.04 per year), female sex (OR 1.62), previous stroke (OR 4.3), depression (OR 4.6), arthritis (OR 4.8), diabetes (OR 1.2), and hypertension (OR 1.3) and having health insurance (OR 0.59). Blindness increased the odds by 20 times (OR 20.1)

Conclusions

- This is the first population-based study on the impact of vision loss on HrQoL in the Caribbean. Presenting VI, including near VI and mild distance VI, is associated with a substantial health burden among older adults in Trinidad and Tobago.
- Health system investment to address cataract surgical waiting times, access to affordable refractive correction, and prevention/treatment of diabetic retinopathy could save approximately 658 QALYs per 100k population (≥ 40 years) per year

Key References

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