

Disability weights for vision disorders in Global Burden of Disease study

As members of the Vision Loss Expert Group, we recognise and applaud the time and effort that went into the 2010 updated Global Burden of Disease (GBD) study. Overall, the methods are excellent and the amount and scope of work breathtaking. The outcome was worth the wait.

However, this work also included a systematic reassessment of the disability weights for an extended range of disorders (Dec 15, p 2129).¹ We are concerned about the apparently anomalous disability weights given to some disorders such as vision loss and blindness. Although the approach seems methodologically sound, the results simply do not pass the common-sense test. They seem to represent a deductive false-cause fallacy.

The cause of this systematic error seems to be in the formulation of the lay questions used in the survey. Although the vision group did see the lay definitions before the survey questions were finalised, we were unable to compare their content or format with the descriptions prepared for other disorders. It seems that some aspects of the lay descriptions might have been misunderstood by respondents, or inaccurately described the relative consequences of each disorder. For example, severe vision loss (visual acuity <6/60, or legal blindness in most countries) only "causes difficulty in daily activities and some emotional impact". Other disorders have "great", "severe", or "extreme" included in their definition.

Vision and hearing loss are notable outliers in the new analysis. The disability weight for blindness has dropped from 0.60 to 0.195, making it little worse than moderate skin disfigurement with itch or pain (0.187), and way behind mild alcoholism (0.259), moderate

rheumatoid arthritis (0.292), or even a pain in the neck (0.221)!

We are also concerned that the sample populations used for the survey (internet-based or in urban settings) did not adequately represent the visually impaired population, which is larger in rural areas of developing countries where there is little access to education or the internet (to see or to complete the survey) or for people to benefit from rehabilitative services or devices for blindness or visual impairment.

The GBD Vision Loss Expert Group was not made aware of the dramatic reduction in weights until the analyses were essentially completed. The large difference merits investigation and explanation before its widespread adoption. The failure of the disability weight assigned to blindness to pass the common-sense test unfortunately threatens the credibility of the whole undertaking.

We declare that we have no conflicts of interest.

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- 1 Salomon J, Vos T, Hogan D, et al. Common values in assessing health outcomes from disease and injury: disability weights measurement study for the Global Burden of Disease Study 2010. *Lancet* 2012; **380**: 2129–43.

Authors' reply

Hugh Taylor and colleagues comment on the new disability weights for vision loss and blindness reported for the Global Burden of Disease (GBD) Study 2010.¹ Three relevant comparisons are indicated.

First, how do weights for vision loss and blindness compare with weights for other GBD 2010 outcomes? Several examples are mentioned by Taylor and colleagues, including moderate skin disfigurement with pain and itching, mild alcoholism, and neck pain. It is important to note that disability weights combine with epidemiological estimates so that the weights apply only to the estimated proportion of cases for a given cause and sequela who are living in the specific health state. Thus, only a small fraction of people with severe skin diseases would have moderate skin disfigurement with pain and itching. Similarly, the disability weight quoted by Taylor and colleagues for severe neck pain was applied only to a small subset of prevalent neck pain cases. For alcohol dependence, we estimated from epidemiological data sources that 44% of cases had no disability, 50% mild disability, and a small proportion moderate and severe disability. With this in mind, we do not understand the claim of a logical fallacy.

We have committed in this study to define disability weights on the basis not of selective personal views—either our own or those of our expert collaborators—nor anecdote, but rather of responses from the more than 30 000 people who participated in the disability weights measurement surveys. We appreciate that our results have already generated interest from several expert groups. Perhaps it is no coincidence that in each case the expert group responsible for a particular set of disorders has suggested that the disability weights for those disorders are too low compared with all the rest. Our own common-sense test suggests that all objections about weights being too low cannot simultaneously be correct.

A second comparison suggested by Taylor and colleagues is between new and old weights. Weights for vision loss in the new study are indeed lower than those estimated previously, in the 1996 revision of the GBD.² However, there are important distinctions



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