

## Commentary: Rapid assessment of avoidable blindness and diabetic retinopathy in India

Recent global data shows that there are 36 million blind and 217 million visually impaired (VI) in the world.<sup>[1]</sup> Although there is a decline in prevalence of blindness and visual impairment (VI), the absolute numbers have increased by 17.6% and 35%, respectively.<sup>[1]</sup> The largest number of blind and VI people reside in South Asia (11.7 and 61.2 million, respectively), with majority being in India (8.8 million and 47.7 million).<sup>[1]</sup> Rapid assessment (RA) surveys done in different regions of the world provided most of the data to arrive at these global estimates; and nearly 50% of the data from India was from these RA surveys.

The Rapid Assessment of avoidable blindness (RAAB) is a standard method for generating evidence on the magnitude and causes of VI and availability of eye care services to provide necessary care and achieve universal eye health.<sup>[2,3]</sup> RAAB 6 has an additional module that covers diabetic retinopathy (DR) which makes the survey more comprehensive.

Numerous RA surveys have been done in India,<sup>[4-13]</sup> however, most of these surveys are from Southern India.<sup>[4,5,8,11-13]</sup> A majority of these are from one state,<sup>[4,5,11-13]</sup> with a few representative surveys from other parts of the country.<sup>[6,9,10,14]</sup> There are hardly any surveys from North or North Eastern parts of the country. One National survey, representing 15 states but done at two different time points, showed a modest reduction in blindness and severe VI, from 8.5% to 8%.<sup>[15,16]</sup> There was a gross variation in prevalence of blindness between states as well as between regions in the states. Results of RA surveys since 2001 have shown that the prevalence of blindness and severe VI varied from as low as 3.7% in Telangana region<sup>[4]</sup> to as high as 12% in Rajasthan.<sup>[6]</sup> Similarly, the VI also varied from as low as 9.4% in Prakasam district, in the state of Andhra Pradesh<sup>[11]</sup> to as high as 29.3% in Gujarat, a state with one of the highest cataract surgical coverage (CSR).<sup>[9]</sup> The reason for the variation could be due to regional differences, the time during which the survey were done, as well as service provision in these regions when the survey was conducted. Hence, there is a need for more surveys in other parts of the country, especially the North and North-Eastern states. This survey by Poddar *et al.* is a useful addition to literature as there are limited surveys done from this state.<sup>[17]</sup> The overall prevalence of blindness and severe VI was 5.6% which was much lower than reported in the past from another region from same state.<sup>[18]</sup> As pointed out by the authors, one of the reason for this low prevalence could be due to availability and access to better eye care services in the study area, due to the presence of a tertiary eye care facility in the adjoining district. However, the prevalence of moderate VI was high. This was also the first study from India reporting on early VI, which was found to be significantly high.

In terms of causes, most of the studies have found cataract as a major cause of blindness and severe visual impairment (SVI); and refractive error as the main cause of moderate VI.<sup>[4,11,12,14]</sup> Unlike other studies, Poddar *et al.* found cataract as major cause of moderate VI.<sup>[17]</sup> One of the factors for this could be due to the way pinhole acuity was recorded.

As far as diabetes is concerned, it is estimated that globally, there will be 439 million affected with diabetes by 2030 (with 69% in developing countries).<sup>[19]</sup> The Indian Council of Medical Research-India Diabetes study estimated that there are 62.4 million with diabetes and 77.2 million with pre-diabetes.<sup>[20]</sup> With the increasing prevalence of diabetes, there will be an increase in prevalence of DR. However, population-based studies on DR are very few and these are mostly from South India.<sup>[21-26]</sup> An urban-rural difference was also observed in prevalence of DR. The prevalence ranges from 13 to 18% in urban areas and from 9 to 10% in rural areas.<sup>[27]</sup> Most of these are population-based studies, which are expensive and time consuming. RAAB can provide fairly accurate information on the prevalence of DR in persons 50 years and above, at low cost and limited time frame. However, there is only one RAAB with DR reported in India.<sup>[28]</sup> The survey showed 21.9% to be diabetics; and the prevalence of any DR was 13% and any maculopathy was 8.9%. Approximately 2% had proliferative DR and prevalence of sight-threatening DR was 3.1%.<sup>[28]</sup> The prevalence of blindness and SVI was found to be 1.5%. In the current study by Poddar *et al.*, the prevalence of diabetes was found to be 6.3%, higher in men.<sup>[17]</sup> The prevalence of any DR in those with diabetes was 14.9%, and any diabetic maculopathy was 12.4%. Approximately 3% had proliferative DR and overall prevalence of sight threatening DR was 6%. The prevalence blindness and SVI was 4.5%. Although the overall prevalence of diabetes in current study was low, there was higher prevalence of complications associated with diabetes suggesting poor glycemic control. Although these studies show the prevalence of diabetes and diabetic retinopathy in the population, these are very few in number; and more studies with similar methodology are required from other parts of the country in order to make a better assessment, and to develop strategies for addressing this problem.

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**Cite this article as:** Misra N, Khanna RC. Commentary: Rapid assessment of avoidable blindness and diabetic retinopathy in India. *Indian J Ophthalmol* 2020;68:381-2.