

## ***Modernizing and expanding universal eye care coverage after VISION 2020: A call for a new approach to global, equitable access***

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### ABSTRACT

*Preventable ocular impairment impacts quality of life immensely. Contributing factors include a lack of resources and professionals, stigma surrounding eyeglasses, the availability of local treatments that generate poor results, and affordability. This paper argues that Vision 2020 did not meet the eye care needs of the global population. More should be done to ensure eye examinations and glasses are made available.*

Keywords: eye care, vision health, access to care, scarcity, ophthalmology, distributive justice

### INTRODUCTION

On February 18, 1999, the World Health Organization launched VISION 2020 to eliminate preventable, treatable blindness by 2020.<sup>1</sup> Today, low-income nations continue to lack access to prevention-based eye care.<sup>2</sup> The leading causes of vision impairment in 2015 were cataracts and uncorrected refractive errors, particularly in low-income nations. Currently, 123.7 million people have uncorrected refractive errors and 57.1 million people have cataracts.<sup>3</sup> 826 million people have uncorrected farsightedness (presbyopia), most prevalent in rural areas among low-income countries.<sup>4</sup> These findings suggest there may be global disparities in access to eye care resources.

Preventable ocular impairment impacts quality of life immensely. For instance, people living with uncorrected refractive errors can have difficulty cooking, recognizing faces, and showering.<sup>5</sup> Cataracts can cause driving difficulties and increase risk of injuries.<sup>6</sup> Access to eye care is vital to performing activities of daily living. This paper discusses the factors that contribute to the immense burden of vision impairment among low-income

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nations, the impact preventable vision impairment has on societies, and some ethical issues and recommendations that should be considered when expanding eye care coverage.

## ANALYSIS

### I. Contributing Factors to the Vision Impairment Burden among Low-Income Nations

#### *Resource Availability*

A lack of trained ophthalmic professionals and equipment remains one of the greatest barriers to reducing the global prevalence of avoidable ocular impairment, especially in low-income nations.<sup>7</sup> Despite an overall increase in total ophthalmologists and optometrists, very few eye healthcare workers are available in rural settings.<sup>8</sup> Over 10 percent of the world's blind population (4.8 million blind individuals) live in Africa, where there are not enough ophthalmologists to care for them.<sup>9</sup> Even if there were enough ophthalmologists worldwide, there are shortages in optometrists and other allied ophthalmic personnel critical to providing comprehensive eye services.<sup>10</sup> Approximately one ophthalmologist is available to address the needs of 446,000 individuals in sub-Saharan Africa.<sup>11</sup> There are drastic differences in the distribution of eye professionals among Anglophone, Francophone, and Lusophone Africa, with the greatest number of professionals available in Anglophone Africa.<sup>12</sup> Many low- and middle-income nations do not have sufficient ophthalmic equipment or infrastructure. Of about 120 healthcare settings in Africa, only 38 percent had an A-scan, a device essential for cataract surgery.<sup>13</sup> The majority of eye services in low-income nations are offered in secondary or tertiary hospitals, which are primarily located in urban areas, fueling the inequity in rural access to healthcare resources.<sup>14</sup>

#### *Gender and Resource Accessibility*

Many demographic factors affect accessibility to eye resources. In some low-income nations, women have lower cataract surgical coverage and poorer visual outcomes than men.<sup>15</sup> Many factors such as "limited financial decision-making power" for women and a lower likelihood for them to travel beyond their community contribute to the gender inequity.<sup>16</sup> Increasing socioeconomic disadvantage, poor health literacy, and lack of knowledge on healthcare resource availability also prevent individuals from accessing eye resources.<sup>17</sup>

#### *Local Remedies*

The presence of local remedies and unlicensed health providers, such as illicit drug sellers or spiritual healers, may divert individuals from ophthalmologists and cause delays in eye treatment.<sup>18</sup> Couching, which is an ancient treatment for cataracts, is still widely practiced in Nigeria.<sup>19</sup> It involves moving the cataractous lens from the visual axis into the vitreous cavity either surgically or through non-invasive methods, such as "repeated blunt trauma" to the eye or applying a plant extract topically.<sup>20</sup> Individuals living in rural regions are more likely to be couched rather than visit an ophthalmologist, and only 9.7 percent of those who were couched had a good outcome.<sup>21</sup>

#### *Affordability*

Individuals with lower socioeconomic status are less likely to seek eye resources. They cannot afford to forego earnings for their basic living needs, which can explain nonattendance at eye care appointments.<sup>22</sup> Costs

involved in receiving eye care, transportation to appointments, and pharmaceutical interventions are common barriers to accessing eye resources. 50 percent of people in low-income nations live more than one hour from a city, making travel difficult for appointments.<sup>23</sup> Additionally, many adults do not have health insurance, which affects their ability to afford eye services. In Trinidad and Tobago, “private sector ophthalmologists provide 80 percent of all eye care services but less than 20 percent of the adult population has health insurance.”<sup>24</sup>

### *Acceptability*

In some societies, eyewear is not accepted and wearing glasses is seen as a disability.<sup>25</sup> Indigenous populations are more likely to access eye services if they are culturally appropriate and integrated into their community-based health service.<sup>26</sup>

## II. Impact of Uncorrected Vision Impairment on Societies

Uncorrected vision impairment has tremendous impact on societies. Apart from poor health, it causes increased social isolation, decreased employment, diminished educational opportunities, and increased morbidity.<sup>27</sup> Uncorrected refractive errors could result in a global productivity loss of US \$202 billion annually; it would take US \$28 billion to resolve this issue.<sup>28</sup> Up to 94 percent of individuals living with farsightedness in low-income nations remain uncorrected or under-corrected.<sup>29</sup> These findings highlight the need to propose radical solutions to achieve access to affordable corrective measures like eyeglasses and contact lenses.

## III. The Ethical Imperative in Eye Care

Basic vision correction is life altering. Those in rural poverty in low-income countries should have access to glasses as a minimum standard of justice. Glasses could change someone’s ability to become educated, achieve job success, and reach a better standard of living. In wealthy countries like the US that do not have universal healthcare coverage, access to glasses is a priority even for the poorest people. An individual’s ability to autonomously achieve their own goals rests on the ability to correct simple vision problems. A lack of eyeglasses threatens autonomy and may require dependence on others for driving and reading. Uncorrected vision also limits job opportunities requiring manual tasks like farming, operating cash registers, managing small shops or businesses, and using computers and phones. For many women, eyeglasses are necessary for weaving, knitting, and sewing to incur income. Living without glasses could also lead to a progressive deterioration in mental health and an inability to engage in social and community activities.

Ophthalmologists, optometrists, and other eye health professionals have a professional obligation to serve the needs of their patients and engage in activities that promote public awareness of eye health issues. However, all doctors are not obligated to care for those in poverty in developing countries. Justice and autonomy should compel governments, with the help of global nonprofits and health organizations to act in the best interests of their communities, to avoid preventable morbidity, and to level the playing field, and allow each person equal opportunities. They should also support transparent, equitable allocation of eye care resources, and use more effective strategies than those implemented in the VISION 2020 initiative. Governments concerned with directing resources to communities equitably should consider eyecare necessary, distribute it fairly, and serve the marginalized.

To meet the needs of the community and fully incorporate eye care in national health strategic plans, governments of low-income nations should allow their citizens to participate in determining what eye health

goals should be achieved. Respecting the community's autonomy to engage in discussions would ensure vulnerable populations can voice their concerns regarding their access to eye care resources. Distributive justice should supersede cost-benefit analysis to ensure certain interventions or subpopulations are not neglected. While scarcity leads to allocation plans that prioritize certain interventions, distributive justice is achievable. To avoid prejudice against the elderly who tend to have vision problems, eyecare plans should not depend on subjective views of quality of life or remaining years. Providers should be able to stretch resources to cover even the most marginalized by using the most economical solutions such as eyeglasses rather than laser surgery to correct vision.

#### IV. Moving Forward to Achieve Universal Eye Care Coverage

Because most eye care delivery in low-income nations is offered at secondary or tertiary hospitals and is restricted to urban settings, providing incentives to rural eye practitioners and training locals to perform eye care is imperative.<sup>30</sup> Enhanced training of primary health staff, training eye health professionals that are not ophthalmologists, and promotion of regular eye exams and eye safety could be effective.<sup>31</sup> Countries should implement programs that destigmatize eyeglasses, improve health literacy, and integrate eyecare into primary care.

To address scarcity of resources, low-income countries should "shift from out-of-pocket payments toward mandatory prepayments with pooling of funds" and prioritize vulnerable populations.<sup>32</sup> The median out-of-pocket spending on health constitutes more than 40 percent of healthcare spending in low-income nations, placing a tremendous financial burden on many families.<sup>33</sup> These nations should estimate coverage costs they cannot meet even with pooled funds and appeal to nonprofits, the international community, and the physician community to meet the costs of basic care. Alternative financial sources, including "national insurance or performance-based financing" may be helpful.<sup>34</sup> Overall, health systems research is important to evaluate the global prevalence of preventable visual impairment, since there is dearth of data in this area.<sup>35</sup>

## CONCLUSION

Visual impairment is still prevalent in low-income nations 21 years after VISION 2020 was launched. The global community and individual governments have an ethical responsibility to reduce the tremendous burden preventable visual impairment has on people in low-income nations. New approaches are necessary to provide affordable, equitable eye care coverage. While scarce resources call for difficult choices, by prioritizing those with correctable vision loss regardless of age or income and using the least expensive solutions (like eyeglasses), countries can achieve distributive justice. Individuals able to correct their vision problems can act autonomously to access more jobs, activities, and opportunities. While global organizations are needed for research, financing, and application, strategic plans should also involve all stakeholders within the healthcare system so local government agencies, healthcare providers, patients, and communities can come together to create a solution. Regulatory frameworks should elevate the standard of living by providing access to vision care that ensures autonomy, beneficence, and justice.

- <sup>1</sup> World Health Organization, "Prevention of blindness and visual impairment," 2020. <https://www.who.int/blindness/partnerships/vision2020/en/>.
- <sup>2</sup> Healio, "Vision 2020 reaches landmark year", January 2, 2020. <https://www.healio.com/news/ophthalmology/20191226/vision-2020-reaches-landmark-year>.
- <sup>3</sup> World Health Organization website. <https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment> See also Flaxman, Seth et al., "Global causes of blindness and distance vision impairment 1990-2020: A systematic review and meta-analysis," *The Lancet: Global Health* 5, no.12 (December 2017): e1221-e1234. [https://doi.org/10.1016/S2214-109X\(17\)30393-5](https://doi.org/10.1016/S2214-109X(17)30393-5).
- <sup>4</sup> Fricke, Timothy et al., "Global prevalence of presbyopia and vision impairment from uncorrected presbyopia," *Ophthalmology* 125, no. 10 (October 2018): 1492-1499. <https://doi.org/10.1016/j.ophtha.2018.04.013>.
- <sup>5</sup> Kandel, Himal et al., "Impact of refractive error on quality of life: A qualitative study," *Clinical & Experimental Ophthalmology* 45, no. 7 (September/October 2017): 677-688. <https://doi.org/10.1111/ceo.12954>
- <sup>6</sup> [InformedHealth.org](https://www.ncbi.nlm.nih.gov/books/NBK390302/), "Cataracts: Overview", October 10, 2019. <https://www.ncbi.nlm.nih.gov/books/NBK390302/>.
- <sup>7</sup> World Health Organization, "World report on vision", 2019. <https://www.iapb.org/wp-content/uploads/world-vision-report-accessible1.pdf>.
- <sup>8</sup> World Health Organization, 2019, p. 36; World Health Organization, 2019, p. 37
- <sup>9</sup> Gilbert, Suzanne et al., "Recruiting and distributing eye health workers," *Community Eye Health*, 31, no. 102 (2018): 45-47; World Health Organization, Global Data on Health Impairments, 2010. <https://www.who.int/blindness/GLOBALDATAFINALforweb.pdf>
- <sup>10</sup> World Health Organization, 2019, p. 37
- <sup>11</sup> Graham, Ronnie, "Facing the crisis in human resources for eye health in sub-Saharan Africa," *Community Eye Health*, 30, no. 100 (2017): 85-87.
- <sup>12</sup> Graham, p. 87
- <sup>13</sup> Patel, Daksha et al., "Ophthalmic equipment survey 2010: Preliminary results," *Community Eye Health* 23, no. 73 (September 2010): 22-25.
- <sup>14</sup> World Health Organization, 2019, p. 37
- <sup>15</sup> Ramke, Jacqueline et al., "Effective cataract surgical coverage: An indicator for measuring quality-of-care in the context of Universal Health Coverage," *PLOS One* (March 1, 2017): e0172342. <https://doi.org/10.1371/journal.pone.0172342>; Lewallen, S et al., "Cataract surgical coverage remains lower in women," *British Journal of Ophthalmology* 93, no.3 (December 17, 2008): 295-298. <http://dx.doi.org/10.1136/bjo.2008.140301>
- <sup>16</sup> World Health Organization, 2019, p. 38
- <sup>17</sup> Ramke, p. e0172342; World Health Organization, 2019, p. 38
- <sup>18</sup> World Health Organization, 2019, p. 38
- <sup>19</sup> Gilbert, Clare et al., "Couching in Nigeria: Prevalence, risk factors and visual acuity outcomes," *Ophthalmic Epidemiology* 17, no. 5 (October 2010): 269-275. <https://doi.org/10.3109/09286586.2010.508349>.
- <sup>20</sup> Gilbert, p. 270
- <sup>21</sup> Gilbert, p. 269
- <sup>22</sup> World Health Organization, 2019, p. 38
- <sup>23</sup> Weiss, D et al., "A global map of travel time to cities to assess inequalities in accessibility in 2015," *Nature* 553 (January 10, 2018): 333-336.
- <sup>24</sup> Braithwaite, Tasanee et al., "Health system dynamics analysis of eyecare services in Trinidad and Tobago and progress towards Vision 2020 Goals," *Health Policy and Planning* 33, no. 1 (January 1, 2018): 70-84.
- <sup>25</sup> World Health Organization, 2019, p. 39; Adeoti, C, "Beliefs and attitude towards spectacles," *Nigerian Journal of Clinical Practice* 12, no. 4 (December 2009): 359-361; Castanon Holguin, Aaron et al., "Factors associated with spectacle-wear compliance in school-aged Mexican children," *Invest Ophthalmol Vis Sci* 47, no. 3 (March 2006): 925-928.
- <sup>26</sup> Turner, Angus et al., "Eye health service access and utilization in the National Indigenous Eye Health Survey," *Clinical & Experimental Ophthalmology* 39, no.7 (September/October 2011): 598-603.
- <sup>27</sup> Honavar, Santosh, "The burden of uncorrected refractive error," *Indian Journal of Ophthalmology* 67, no. 5 (May 2019): 577-578.
- <sup>28</sup> Fricke, TR et al., "Global cost of correcting vision impairment from uncorrected refractive error," *Bulletin of the World Health Organization* 90, no.10 (July 12, 2012): 728-738.
- <sup>29</sup> Frick, Kevin et al., "The global burden of potential productivity loss from uncorrected presbyopia," *Ophthalmology* 122, no. 8 (August, 1, 2015): 1706-1710.
- <sup>30</sup> World Health Organization, 2019, p. 37

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<sup>31</sup> World Health Organization, 2019, p. 123; World Health Organization, 2019, p. 51

<sup>32</sup> World Health Organization, 2019, p. 110

<sup>33</sup> World Health Organization, "Public spending on health: a closer look at global trends," 2018, <https://apps.who.int/iris/bitstream/handle/10665/276728/WHO-HIS-HGF-HF-WorkingPaper-18.3-eng.pdf?ua=1>.

<sup>34</sup> Blanchet, p. 1326-1327

<sup>35</sup> World Health Organization, 2019, p. 84; World Health Organization, "Universal eye health: A global action plan 2014-2019," 2013, [https://www.who.int/blindness/AP2014\\_19\\_English.pdf?ua=1](https://www.who.int/blindness/AP2014_19_English.pdf?ua=1).