



The Epidemic of Cataracts in sub-Saharan Africa

The Problem: Explanation and Causes

Cataracts are a disease in which the lens of the eye is clouded, which impairs vision and often results in blindness. According to the World Health Organization (WHO), **over 20 million people worldwide suffer from cataracts** ("Priority Eye Diseases").

Cataracts are referred to as an "age related disease" because most people with cataracts are above the age of 50. **Although the disease primarily affects people over 50 years old, children are not immune. In fact, the National Center for Biotechnology Information (NCBI) estimates that between three and six children per 10,000 are born with congenital cataracts each year. As a result, pediatric cataracts affect approximately 200,000 children worldwide** (Anagha and Nischal).

The causes for the disease are complex. As the National Eye Institute explains, **cataracts are a disease which is mostly associated with extended exposure to ultraviolet radiation. However, ophthalmologists have determined that other factors also induce the formation of cataracts, such as smoking, excessive drinking, and diabetes** ("Facts About Cataract"). In addition, recent research has shown a connection between nutrition and cataracts. According to the American Optometric Association, studies suggest that **a diet rich in antioxidants such as vitamins A, C, and E can prevent cataracts, while a lack thereof can lead to vision problems** ("Nutrition and Cataracts"). Therefore, quality nutrition can protect against cataracts, whereas malnutrition can contribute to its development.

Cataracts are particularly a problem in sub-Saharan Africa. According to an article in *Investigative Ophthalmology & Visual Science*, researchers estimate that **the eye disease affects over 3 million people in sub-Saharan African** (Khairallah, et al.). Cataracts is such an epidemic in this area of the world due to inadequate economic conditions, lack of educational resources, and insufficient healthcare. **In some sub-Saharan African countries, there is only one ophthalmologist per one million people according to the International Agency for the Prevention of Blindness** (André). With so few eye doctors per capita, many African citizens in these countries are not only unable to treat their cataracts, but a significant portion might not even know what a cataract is.

In addition to poor socioeconomic conditions, malnutrition and other health factors seem to be contributing to the widespread problem of cataracts in sub-Saharan Africa. For example, in Mali, Vitamin A deficiency ranks third on the list of the country's health problems associated with disability, according to the Institute for Health Metrics and Evaluation ("Mali"). Vitamin A is a vitamin directly linked to eye health, so there is likely a correlation between vitamin A deficiency in Mali and the prevalence of cataracts in the country. In that same report of Mali, diabetes ranks tenth on the list of health problems which cause disability. The number of people with diabetes in Mali grew by over 56% between 2007 and 2017 ("Mali"). Diabetes is another major cause of cataracts, which most likely provides another health-related contributing factor to the persistence of the eye disease in Mali.

Due to these socioeconomic and health-related contributing factors, cataracts are an epidemic in sub-Saharan Africa, but particularly in *western* sub-Saharan African. According to the NCBI, **the percentage of adults above the age of 50 who are blind because of cataracts in western sub-Saharan Africa is the highest in the world at a rate of 6.0%** (Lee and Afshari). **Thus, countries like Mali, Senegal, and Nigeria suffer from age-related cataracts at a disproportionately higher rate compared to other countries of the developing world.**

The Effects

Cataracts can have crippling effects on people. The ability to see is something so basic yet so essential that, in the absence of this ability, people cannot function normally and lead a satisfying life. No study better examines the effects of cataracts on quality of life than the “Cataract Impact Study” (Danquah et al.). This was a six yearlong study which observed the lives of people over the age of fifty in the Philippines and Bangladesh with cataracts before and after surgery. With quantifiable measurements, the study was able to show the substantial disparities pertaining to vision related quality of life and economic status between those with and without the disease.

As a measure of vision related quality of life, researchers of the “Cataract Impact Study” used a scale from 0 to 100 which considered factors pertaining to overall eyesight, general functioning, and psychological well-being. The study found that difference in this scale measurement between those with and without cataracts in the Philippines, for example, was more than 200% (ibid.). **Thus, people with healthy eyesight experienced a vision related quality of life which was more than three times better than those suffering from cataracts.**

Furthermore, the study analyzed the differences in average monthly personal consumption expenditures (PCE) as a way to measure the economic impact of cataracts. From the data, researchers again found significant disparities in this measurement between those with and without the eye disease. In Bangladesh, for example, average monthly PCE was about 80% higher for those with healthy eyesight compared to those with cataracts (ibid.). This conclusion was not surprising. Having impaired eyesight limits one’s ability to work and make money. **As a result, people with cataracts are unable to earn as much money and consume as much as those with healthy eyesight.**

The “Cataract Impact Study” shows how the epidemic of cataracts in some countries presents an obstacle to several of the U.N.’s Sustainable Development Goals (SDGs). Given that this disease impairs eyesight and even causes blindness, cataracts are a direct challenge to SDG 3: Good Health and Well-Being (“Sustainable Development Goals”). In addition, the study’s evidence of the economic impact of the disease proves that cataracts can inhibit one’s ability to work and consume. Because of this, people with cataracts in the developing world are often poor. Eliminating poverty is the first Sustainable Development Goal of the U.N., so addressing the cataracts problem in the developing world could indirectly address the issues of poverty as well (ibid.).

Cataracts can have stifling effects on victims themselves, but this disease also affects the people related to those with impaired vision. For example, children in the developing world whose parents suffer from cataracts must stay at home to help take care of them. As a result, these children are unable to attend school and get an education. According to the World Bank’s latest numbers, Mali currently has a primary school enrollment rate of only 61% (“School Enrollment, Primary (% Net)”) and a secondary education rate of only 41% (ibid.).

This secondary consequence must not be ignored because this is an issue which relates to SDG 4: Quality Education (“Sustainable Development Goals”). Therefore, the cataracts disease is a problem which not only directly affects the well-being of the older generation, but this disease can restrict the educational and career opportunities of the next generation. **This in turn can disrupt the country’s economic trajectory towards sustained and balanced growth in the future.**

The Solution

While cataracts can have debilitating effects on people, the disease is highly treatable with surgery. **According to Harvard Medical School, the cataracts surgery has a success**

rate between 97% and 98% (“Considering Cataract Surgery? What You Should Know”). Not only does the surgery have a high success rate, but the operation is proven to have long term benefits. In reference again to the “Cataract Impact Study”, researchers found that while there were initial grave disparities between those with and without cataracts pertaining to the measurements for vision related quality of life and economic status, these measurements nearly converged six years after the research participants with cataracts had the surgery (Danquah et al.). Thus, the surgery was able to return people’s vision related quality of life to normal levels and alleviate the economic burden of the disease.

Although many underserved populations in Africa cannot afford to pay for the costs of the surgery, the operation is relatively inexpensive. **With the support of donations, Embrace Relief is able to perform the cataracts surgery in the developing world, as well as provide ten checkups for the patients, at a cost of only \$100. However, this operation comes at no cost to the patients themselves.** The organization currently operates a mobile clinic in Mali where they have helped hundreds of people with this disease regain eyesight and return to being productive members of society.

Donating to the Clinic in Bamako

In addition to operating its own mobile clinic, Embrace Relief works with and donates to a larger stationary health clinic located in Mali’s capital city of Bamako. Since 2013, this clinic has examined over 300,000 patients and performed over 25,000 cataract surgeries. **This aggregate amount comes out to about 200 checkups and 20 cataracts surgeries a day, all at no cost to the people of Mali.**

While the work they do at the clinic is remarkable, they are still dependent on donations from humanitarian aid organizations, like Embrace Relief, to sustain their operations. Currently, they are in desperate need of new supplies. **Specifically, they have requested a portable x-ray machine, an ultrasound machine, an operation room light, a medical examination room light, a defibrillator, as well as several other essential machines, devices, and materials.**

These materials are absolutely essential for providing proper care to their patients. Supplying this clinic with these crucial devices and materials will allow thousands of more people in Mali regain their sight and reclaim their independence and quality of life.

Works Cited

- André , Jean-Marie. “Africa Day: Training Specialists to Treat Cataract Blindness.” *IAPB*, 26 May 2017, www.iapb.org/news/africa-day-training-specialists-treat-cataract-blindness/.
- “Considering Cataract Surgery? What You Should Know.” *Harvard Health Publishing* , Harvard Medical School, 12 July 2018, www.health.harvard.edu/diseases-and-conditions/considering-cataract-surgery-what-you-should-know.
- Danquah, Lisa, et al. “The Long Term Impact of Cataract Surgery on Quality of Life, Activities and Poverty: Results from a Six Year Longitudinal Study in Bangladesh and the Philippines.” *PLOS ONE*, Public Library of Science, 18 Apr. 2014, journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0094140#pone.0094140-Kuper1.

"Facts About Cataract." *National Eye Institute*, U.S. Department of Health and Human Services, 1 Sept. 2015, nei.nih.gov/health/cataract/cataract_facts.

Khairallah, Moncef, et al. "Number of People Blind or Visually Impaired by Cataract Worldwide and in World Regions, 1990 to 2010." *Investigative Ophthalmology & Visual Science*, The Association for Research in Vision and Ophthalmology, 1 Oct. 2015, iovs.arvojournals.org/article.aspx?articleid=2465334.

Lee, Cameron M, and Natalie A Afshari. "The Global State of Cataract Blindness." *Current Opinion in Ophthalmology*, U.S. National Library of Medicine, 28 Jan. 2017, www.ncbi.nlm.nih.gov/pubmed/27820750.

"Mali." *Institute for Health Metrics and Evaluation*, 15 Sept. 2017, www.healthdata.org/mali.

Medsinghe, Anagha, and Ken K Nischal. "Pediatric Cataract: Challenges and Future Directions." *Clinical Ophthalmology (Auckland, N.Z.)*, Dove Medical Press, 7 Jan. 2015, www.ncbi.nlm.nih.gov/pmc/articles/PMC4293928/.

"Nutrition and Cataracts." *American Optometric Association*, www.aoa.org/patients-and-public/caring-for-your-vision/nutrition/nutrition-and-cataracts.

"Priority Eye Diseases." *World Health Organization*, World Health Organization, 18 Apr. 2018, www.who.int/blindness/causes/priority/en/index1.html.

"School Enrollment, Primary (% Net)." *Data*, The World Bank, data.worldbank.org/indicator/se.prm.nenr.

"School Enrollment, Secondary (% Gross)." *Data*, The World Bank, data.worldbank.org/indicator/SE.SEC.ENRR.

"Sustainable Development Goals." *United Nations*, United Nations, sustainabledevelopment.un.org/.