Review Article

Should Glaucoma be Public Funded in Nigeria? Arguments Against Funding Glaucoma Treatment and Rebuttal

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Abstract

Global studies indicate glaucoma treatment can preserve valueable vision, especially when commenced in its early stage and sustained. Despite glaucoma being responsible for blindness in thousands of Nigerians and accompanying disruption of their flourishing lives, Nigeria's funding glaucoma would not be easy to accomplish. This essay analyses opponents' arguments against Nigeria's funding glaucoma treatment. These include an inherent complexity of glaucoma, inadequate healthcare resources, the individual with glaucoma factor, and economic reason.

Keywords: Glaucoma, glaucoma awareness and education, Nigeria, resource for glaucoma care, resource-limited economy

Background

Despite Nigeria's funding glaucoma treatment being long overdue, the opponent to it would contend with flimsy excuses, including quiet a marginal visual improvement following treatment and poor state of Nigeria's economy to oppose it. However, glaucoma funding is worthwhile and feasible. The opposing arguments are rather challenges that are also reasons why glaucoma should be public funded. The peculiarities of glaucoma should rather attract public sympathy, and it deserves to be funded. Moreover, with appropriate management of its resource, Nigeria should comfortably afford funding its social services, including glaucoma treatment. Importantly, treatment is a need to an individual with glaucoma (IWG), and justice demands fair treatment for them. It is unfair to show the nation's poor economic condition for not funding glaucoma, as it would only lead to more Nigerians going blind, a situation that would further worsen Nigeria's economy. Rather, Nigeria should mobilize and allocate resources toward glaucoma care.

The advocacy for public-funded glaucoma treatment is grounded on highlighted reasons in a sister paper under consideration, including observations that many IWG cannot afford glaucoma treatment, relationship between poor treatment compliance and IWG inability to afford treatment, and nation's lack of effective and efficient universal health insurance coverage. Other reasons are lack of ready sponsors or funders for glaucoma, the preponderance of glaucoma in the working-age group, the inverse relationship between available healthcare resources and population distribution, the negative impact of glaucoma on the IWG's quality of life (QOL), and the eye health professionals' concern.

Despite the Nigeria's National Health Insurance Scheme (NHIS), glaucoma treatment is yet to get the deserved public funding priority. At present, NHIS covers just an integral part of glaucoma treatment (only trabeculectomy and often nonavailable few antiglaucoma drugs) and covering, at best, insignificant number of IWG. The objectives of this paper were to highlight and provide rebuttal to antagonist's arguments against public-funded glaucoma treatment. Importantly, it is a strong advocacy for the treatment of glaucoma at no cost to IWG at the point of delivery toward reducing glaucoma's harmful impact on the individuals and society. Further, the stakeholders in eye health care, especially researchers,

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would find this work useful for its ethical, academic, and persuasive reasons.

The potential opponents to glaucoma funding

The opponents to funding glaucoma treatment as envisaged in this work can be categorized into two including the stakeholders (internal) and nonstakeholders (external) in eye health care whose attitudes, actions, and practices directly or indirectly negate the public funding of glaucoma treatment.

(i) *Internal opponent* may include eye healthcare professionals who may objectively or subjectively, directly or indirectly, intentionally or inadvertently antagonize public funding of glaucoma treatment. Suppose there is a donation of 1 million naira (or any other currency denomination) to sponsor free eye care for 100 patients. An ophthalmologist most likely considers cataract and refractive errors for sponsorship simply because they are cost effective and their treatments have comparative advantage over glaucoma treatment. The position of an ophthalmologist, who is an administrator or advisor to a policy maker, may not be different. The ophthalmologist becomes an opponent to funding glaucoma, as there is no rationalization for glaucoma to be considered. The article lists some of the reasons that are shown for not considering glaucoma among other health conditions, although IWG suffer from glaucoma just as cataract or refractive errors patients suffer from their respective disorders.

(ii) *External opponent* may include nonstakeholders in eye health care. When the eye-care professionals discretely or openly antagonize glaucoma funding, the laymen in glaucoma may be encouraged not to support the glaucoma funding. Notwithstanding, the finitely available resource to health care essentially encourages intra- and extraspecialties competition for funding. An otorhinolaryngologist or nephrologist will prefer laryngeal cancer/hearing loss or renal failure/kidney transplant, respectively, being public funded instead of glaucoma. In a macrobudgetary allocation of finite national resource, the rest members of the public will prima facie support their interests and not necessarily glaucoma cause unless they have strong reason to do so. Interestingly, an IWG lacking in glaucoma education may even perceive glaucoma treatment as a waste of resources; thus, they oppose.

Materials and Methods

This is a normative study, an ethics-based study highlighting the antagonist's arguments against public-funded glaucoma treatment and its rebuttal toward funding glaucoma treatment. The relevant literatures from the library of Keele University, Staffordshire, United Kingdom, personal library, and online articles were reviewed and cited.

This paper is part of a large work, which has been subdivided into articles. The rest, which are under consideration for publication, include background, justification, and the study overview; harms of glaucoma and arguments for funding glaucoma treatment; and resource allocation and justice arguments for funding glaucoma treatment.

This paper argues major issues that can militate against public funding of glaucoma in Nigeria from antagonist's perspective with rebuttal, including inherent complex nature of glaucoma (relentlessness once it manifests, antiglaucoma drug side effects, the challenge of diagnosis at its early stage, and doubtful goal of preventing blindness from glaucoma through public funding), lack of adequate resources for glaucoma care (inadequate and lopsided distribution of human and material resources, inverse relationship in distribution between inadequate eye-care resource and Nigeria's population), poor glaucoma awareness and education among Nigerians (low literacy level and glaucoma awareness), low priority rating of glaucoma compared with other health conditions [competition for funding among diseases of public health importance, low funding prioritization for glaucoma using utilitarian principle, cost effectiveness, and quality adjusted life years (QALY)], and doubtful capability of Nigeria to afford nationwide expenses required for glaucoma treatment (dwindling economic resources, rising population and life expectancy, rising inflation on eye-care material resource, rising cost of training, and remuneration for eye-care personnel).

Arguments against funding glaucoma treatment and rebuttal

Enumerated below are arguments against funding glaucoma treatment and rebuttal.

Glaucoma is inherently complex eye disease

The opponent to public-funded glaucoma treatment may argue that glaucoma is *inherently complex eye disease and in most cases the cause is unknown* but rather shrouded in pressure, neural, vascular, and mechanical theories.[1,2] At best, glaucoma is only associated with many risk factors particularly intraocular pressure (IOP), family history, and race, which are further indications that glaucoma treatment would be difficult and less cost effective. Only IOP is controllable; family or race of the IWG can never be changed.

Contrary to the opponent's argument, the complexity of glaucoma as a disease should elicit public concern for the IWG, rather than being a hindrance to public-funded glaucoma treatment. Glaucoma is not a self-inflicted condition like lung cancer in chronic cigarette smoker or liver cancer in chronic alcoholics, rather glaucoma is either genetically or sporadically acquired. Even when health conditions are self-inflicted, they are not absolute hindrance to public support for such individual. If the public can consider funding equally challenging diseases

like sickle cell anemia, human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS), and cancers, glaucoma should equally enjoy similar funding consideration.

Glaucoma is inherently relentless once it manifests

The opponent of public-funded glaucoma care may further contend that *glaucoma is inherently relentless once it manifests* and even when treated it cannot be cured. Moreover, glaucoma treatment is not IWG-friendly because it has to be sustained to make impact, if any, and probably a reason for its notoriety for the IWG's poor treatment compliance. Undoubtedly, glaucoma is relentless, but it is similar to and should be ranked in the category of systemic hypertension and diabetes mellitus that are not curable but are controllable. Rather than excusing to fund glaucoma as the IWG's compliance to treatment on the need to sustain its treatment for life, glaucoma should receive a deserved attention like hypertension and diabetes mellitus that are equally not curable but controllable. Funding glaucoma treatment should be premised on being controllable rather than its funding being excused on its relentless nature.

The antiglaucoma drug side effects

On another note, the opponent may support glaucoma nonfunding *on the basis of antiglaucoma drug side effects*, because some antiglaucoma drugs are associated with annoying side effects; for instance, diamox is known for diarrhea, metallic taste, and tingling sensations. It is the reason why the IWG fail to use antiglaucoma drugs even when they are freely delivered. Notably, this would not be a reasonable justification to abandon public-funded glaucoma treatment, because side effects are not limited to only antiglaucoma drugs. Generally, although all drugs have side effects, some are insignificant and some anticancer drugs may even have life threatening side effects. It is a fact that the side effects of antiglaucoma drugs are uncommon, tolerable, and are rarely life-threatening. Of course, there are many tolerable antiglaucoma drugs that are being used without any untoward effects on the IWG.

Challenge in diagnosing glaucoma

Furthermore, the opponent may argue that *the diagnosis of glaucoma is not easy, especially at its early stage* when it has not caused much damage to the eye. Glaucoma is very difficult to be diagnosed in its earlier stage and requires a specialist. Despite that some cases still remain misdiagnosed. Sometimes there is confusion between glaucoma and other ocular conditions that may mimic glaucoma, such as myopia or familiar high cup-to-disc ratio. This would impact adversely on effort to reduce blindness through funding glaucoma treatment. Nonetheless, this should not be a hindrance to public-funded glaucoma care as the number of misdiagnosis, if any, would not be significant enough to excuse funding glaucoma treatment. It would rather be a challenge that is easily resolvable by eye-care specialists through improved expertise or diagnostic skills as more IWG access glaucoma treatment. On a practical note, it would be absolutely impossible to totally eliminate occasional misdiagnosis in medical practice but rare disease conditions do occur.

Doubtful feasibility of preventing blindness from glaucoma through public funding

To the opponent, the *objective of public funding to prevent blindness from glaucoma is even unlikely to be feasible*. This would only be possible in condition of early diagnosis and sustained treatment for glaucoma. For reasons not limited to inadequate resources, many Nigerians would necessarily not be diagnosed early enough to be helped even if treatment is freely delivered. Moreover, population screening of Nigerians for glaucoma is impossible for economic and logistic reasons. Nigeria doesn't have resources to make such screening feasible. Although a total population screening is ideal, the truth is that no society can afford it. It is counterproductive to invest huge public resources on glaucoma treatment only for the beneficiaries to present themselves at a late stage of the disease when treatment would virtually be of no use.

Contrarily, the opponents' position appears theoretical as experiences during cost-free eye-care programs across Nigeria over the years prove beyond reasonable doubts that Nigerians would access cost-free glaucoma treatment services if public funds it. It is an incontrovertible fact that usually Nigerians turn out in great numbers to access all cost-free health programs, especially eye-care services. The IWG would not only avail themselves with glaucoma treatment which is freely delivered but would also come along with family members which would help in early diagnosis of the IWG.

Lack of adequate resources for glaucoma care

The opponent may further argue against public-funded glaucoma treatment on account of *inadequate resources for eye care*, as the success of glaucoma treatment would draw largely from early detection and sustained treatment for glaucoma. This would require trained manpower, equipments, and health facilities for effective delivery. At present, the proportion of such sophisticated resources to Nigeria's population is very low to achieve success for nationwide glaucoma treatment.

Inverse relationship in distribution between the population and available resources for glaucoma care

Paradoxically, *Nigeria's population is skewed toward remotely located rural settlements, whereas the available inadequate resources for glaucoma care are lopsided in urban areas*.[3] This would necessarily lead to glaucoma treatment noncompliance among rural IWG who would not be able to afford added travel costs (indirect cost). Even not all eye clinics are adequately equipped to render glaucoma services. A study on challenges of glaucoma service delivery

in tertiary facility in Nigeria[4] underscores the need to improve on resource for glaucoma treatment.

Nonetheless, Nigeria cannot have all required resources to undertake nationwide glaucoma treatment from the outset; rather there would be improvement through resource mobilization and redistribution over time. It is a fact of life that any worthwhile venture is not without its initial challenges that are taken care of over time. Great and successful ideas or technologies, including motors, airplane, and even computers, were neither esthetically appealing nor very effective and efficient at their inception, but today they are modernized and are still improving. The UK National Health Service (NHS) and the US Medicaid reached their towering heights after passing through turbulent periods and are still subjects of periodic reviews. Public-funded glaucoma care can definitely outgrow the limited manpower and material resource obstacles with their fair distribution across the Nigerian communities.

Poor glaucoma awareness and education among Nigerians

In another vein, the opponent may argue that *poor level of glaucoma awareness and education among Nigerians* would jeopardize public-funded glaucoma treatment. This is so because education plays a significant role in awareness and knowledge of consumers of healthcare services. It is doubtful if the goal of reducing the number of Nigerian glaucoma blinds would be achieved without people first being aware of glaucoma disease which plays a very crucial role in their early presentation for glaucoma care. Glaucoma treatment can only be meaningful when it is commenced in its early stage. This would require a high level of awareness and understanding among the populace. The huge resources expended toward preventing glaucoma blindness are wasted when the IWG seeks treatment at very late stage of glaucoma because treatment would no longer preserve useful vision.

Moreover, the success of glaucoma treatment, especially compliance, would depend much on glaucoma education among the IWG. This may be in form of eye-care personnel verbal or written messages on glaucoma, treatment interventions especially salient investigations, drug administration, and surgery. Second, hand messages through an interpreter may not necessarily have similar impact on the IWG's compliance to treatment plan. The opponent may contend with a view that funding would amount to a waste of taxpayers' money if the IWG fails to understand relevant information on treatment.

Undoubtedly, education would greatly assist the populace in information dissemination on glaucoma. However, it would be counterproductive to excuse funding glaucoma treatment on low level of glaucoma awareness or education in Nigeria. Education and awareness are dynamic processes and never a one-stop affair. Although initial glaucoma awareness campaign across Nigeria is necessary, the program itself has potential to drive its own awareness with time. Educationally, people have to enjoy normal vision to even benefit optimally in a learning process. Moreover, it is plausible to raise the level of awareness of people on glaucoma using mass media particularly radio as well as talks in the hospitals and communities in local languages. Practically, the level of glaucoma education and awareness in Nigerian communities are not too bad to discourage public-funded glaucoma care. Whereas Nigeria can embark on glaucoma awareness campaign among the populace, glaucoma education would be much more relevant to the IWG. It is counterproductive to withhold important project like public-funded glaucoma treatment on a flimsy premise of poor glaucoma education among Nigerians. Even at that, Nigerians' glaucoma education is not as bad as the opponent appears to suggest.

Low priority rating of glaucoma compared with other health conditions

Moreover, to the opponent, it may be *unthinkable to isolate glaucoma treatment for public funding in Nigeria*. In the first instance, Nigeria has high burden of other diseases like malaria, sickle cell disease, HIV/AIDS, hypertension, diabetes mellitus, and cancers. Admittedly, these are not necessarily primarily eye diseases but the high prevalence of each of them makes it a priority for Nigeria's funding ahead of glaucoma. Moreover, each of them being a systemic disease has secondary effect on eyes and can lead to blindness if not treated. Worse still is the fact that when untreated, each of them can primarily cause death unlike glaucoma.

Glaucoma should not even be the first priority among eye diseases

Similarly, the opponent may argue that *glaucoma should not even be the first priority among eye diseases* for public funding in Nigeria for obvious reasons. For instance, the most common cause of blindness in Nigeria is cataract with a prevalence of 1.8% compared with 0.7% for glaucoma among Nigerians who are at least 40 years old.[5] This implies the number of Nigeria's cataract blinds is more than double glaucoma blinds. Besides, cataract treatment is less cumbersome compared with glaucoma treatment. Except for complicated cataracts (especially caused by trauma, diabetes mellitus, eye infection, congenital or hereditary diseases, or complicated surgeries), cataract treatment guarantees marked improved vision compared with glaucoma where visual loss is irreversible. Moreover, cataract treatment is well defined and lasting for a definite period compared with glaucoma treatment which is life-long. Overall, cataract treatment is cost effective than glaucoma treatment.

Furthermore, although refractive error has less prevalence of blindness compared with glaucoma, it is a leading cause of visual impairment among Nigerians. Public-funded refractive error treatment in place of glaucoma has potential to prevent visual impairment among Nigerians. Like cataract, treatment for refractive error is unarguably cost effective than

glaucoma. Comparatively, ocular trauma causes blindness mainly among youths, but like glaucoma, it can cause irreversible blindness and unlike glaucoma can elicit emotions that would earn the injured victims treatment. Overall, glaucoma may not be the most favored for public funding should eye diseases be prioritized.

Contrary to the opponent submission, it is unfair to allege that glaucoma would be isolated for funding among diseases of equal or greater public health importance in Nigeria when eventually funded; rather glaucoma has not been receiving a deserved support. Of course, any disease that potentially or outrightly threatens a flourishing life qualifies to be treated. It is counterproductive to oppose funding glaucoma treatment because a particular disease has not been funded. Instead, there should be general advocacy for public funding all deserving diseases.

By the way, it is incorrect to insinuate that hypertension, diabetes mellitus, sickle cell anemia, cancers, cataract, and refractive errors are not accorded more priority than glaucoma in Nigeria. Rather, all these diseases receive far more funding attention, not necessarily adequate, relative to glaucoma. Perhaps the prioritization of these diseases for funding over glaucoma occurs because they are considered, not necessarily correct, of more public health significance, therefore, swaying public attention from the plight of the IWG. Regrettably, public attention is erroneously distracted from funding glaucoma because of mismanaged Nigeria resources which, if appropriately managed, should be sufficient to fund all diseases of public health importance, including glaucoma.

Moreover, it would be unfair to compare cataract and refractive error with glaucoma as they are usually amenable to treatment unlike glaucoma that causes irreversible blindness. Therefore, considering the irreversibility of blindness, glaucoma funding should even be prioritized over cataract because blindness from cataract unlike from glaucoma can be reversed. This does not necessarily amount to arguing against funding cataract. Besides, whereas either cataract or refractive error can readily attract donors to support its treatment, such assistance is rare for glaucoma.

Glaucoma on a scale of quality-adjusted life years

On another note, the opponent may employ *QALY and utilitarianism* to advocate public funding for cataract, refractive error, hypertension, and malaria rather than glaucoma. Suppose Nigeria is to fund each of these diseases. Suppose (i) a year of healthy life expectancy to be worth 1, (ii) a year of unhealthy life expectancy to be worth less than 1,[6] (iii) an average life expectancy in Nigeria to be 60, (iv) each IWG is 40-year-old, and (v) the treatment of each disease cost N6,000 (£20).

On treatment, it is possible to restore each individual with hypertension, malaria, and cataract to their predisease (normal) state; thus, each plausibly has a year of healthy life expectancy to be worth 1. Contrastingly, a treatment of visually impaired IWG would not restore vision to the previous normal state; thus, a year of unhealthy life expectancy would be worth less than 1. Expectedly, more value would be added to the life of each individual with other diseases following an effective treatment unlike glaucoma.

Glaucoma on a scale of utilitarianism

Equally, from a utilitarian point of view, more Nigerians are afflicted by other diseases compared with glaucoma; thus, the treatment of each would be greater good for a greater number compared with glaucoma treatment. Even in order of healthcare need priority, glaucoma would not be preferred for public funding in place of hypertension, malaria, and cataract. Whereas other diseases can primarily cause death, glaucoma can only do so secondarily.

The opponent's argument exposes the pitfalls of QALY and utilitarianism. QALY and utilitarianism necessarily discriminate against funding glaucoma because the IWG are not as many as the number of individual with each of hypertension, diabetes mellitus, cataract and refractive error, and also it may cost more to treat glaucoma relative to each of the other diseases. However, the IWG live with the reality of harmful effects of glaucoma, and definitely both QALY and utilitarianism are not helpful, as they would prioritize for funding other diseases ahead of glaucoma.

The fact is that each IWG experiences interruption to flourishing life just like individual with comparable other diseases. Although QALY estimates that funding glaucoma treatment is not cost effective, the treatment-associated marginal gain in visual recovery and its capacity to preserve life-long useful vision are huge benefits of public funding glaucoma when compared with irreversible blindness from untreated glaucoma.

Marginal vision makes life worthwhile when compared with blindness that mostly makes life not worth living. Of course, QALY and utilitarianism are arguably setting double standard because it seems they trivialize harm caused by glaucoma while magnifying that caused by other diseases. Rather, glaucoma and other diseases are of equal importance as each of their respective afflicted individuals experience discomfort and interruption to a flourishing life.

Citizens cannot meet the social responsibility for public-funded glaucoma treatment

Undoubtedly, the opponent may put up a strong argument that Nigeria is yet to *translate its huge potentials to socioeconomic benefit* capable of supporting public funding glaucoma treatment. Notwithstanding, Nigeria is the most populous African nation, about 180 million people[7] and Africa's largest economy, gross domestic product (GDP) 510 billion USD,[8] its economic index shows most Nigerians are below the poverty line with about one-third of the entire population living in extreme poverty.[9] Many Nigerians are either unemployed or poorly

remunerated with consequential economic inequality. Nigeria society essentially has dual economies: first, a very rich economy for selected few who live in affluence, and second, a poor economy for the majority who live in misery.

The trio of poverty, unemployment, and inequality has implication for public funding of glaucoma treatment. It would be impossible to tax Nigerian IWG who are not gainfully employed. A public-funded health care would be sustainable when there is public support particularly when beneficiaries pay taxes. Even with the payment of taxes by the UK citizens, rationing has to be introduced into public healthcare services as NHS bill increases yearly. Public-funded glaucoma treatment would not be feasible or sustainable because most intended beneficiaries are indigents or not gainfully employed and would not be able to pay taxes to support glaucoma funding.

Nigeria cannot afford funding glaucoma treatment

Foisting further economic argument, the opponent may posit that *Nigeria's economy cannot at present fund glaucoma treatment*. In the first instance, Nigeria has monoproduct economy that depends on crude oil sales; however, the recent fall in price of crude oil necessarily plunges Nigeria into economic crisis. The fall in crude oil price is unlikely to recover appreciably because there are advances in cleaner, safer, and more efficient alternative sources of energy. Besides, more crude oil deposits are being discovered globally. For instance, the United States shale oil and the recently discovered Gatwick oil in the United Kingdom. A simple economic analysis would necessarily mean more oil and reduced market price. It is doubtful if Nigeria can fund glaucoma treatment without a predictable source of revenue.

Nonetheless, the opponent underrates Nigeria's economic potential and essentially pessimistic. Contrary to the opponent's argument, Nigeria can fund glaucoma treatment with potential benefit to improve Nigeria's economy. Nigeria is blessed with human and material resources–large population, fertile land, deposits of solid minerals, and of course crude oil that can be harnessed to fund glaucoma treatment. Nigeria's economic predicament is not due to lack of resources but huge mismanagement of its resources.[10,11] For many years, most Nigeria's ruling class engaged in looting of public funds[12,13] and lacked any concrete plan for the nation, impacting negatively on national development, especially funding social services. Nigeria would comfortably afford social services, including funding glaucoma treatment, if it can successfully curb stealing and corruption in public places.

Interestingly, Nigeria has a dynamic system of governance with high potential to have leadership with vision and will power to tackle endemic corruption and mismanagement. Expectedly, such leadership would create new jobs that would enable more Nigerians to be gainfully employed as well as pay taxes to support public services, including public funding glaucoma treatment.

Moreover, as Nigeria will be able to block huge revenue loss by tackling the growing crude oil theft,[14] it would have sufficient revenue to support social services, including funding glaucoma treatment. Meanwhile, the crude oil price is dynamic and subjected to global market forces and a fall in price is not unusual. However, Nigeria needs to factor such into its economic plan so as not to be caught unaware during periods of global oil price recession. This would be necessary to enable Nigeria to sustain social services, especially funding glaucoma treatment when implemented. Contrary to the opponent's argument, Nigeria has resources but only need proper management to support public-funded glaucoma treatment. Moreover, diversification of Nigeria's economy into nonoil income generating ventures, especially among others agriculture and solid minerals, would go a long way to support Nigeria's social services, including health care such as glaucoma treatment.

The cost estimate of glaucoma treatment is staggering

The opponent may still raise serious objection to public funding glaucoma treatment considering *the cost estimate of glaucoma treatment* itself. The cost of glaucoma treatment would include direct (visible) – for antiglaucoma drugs and surgeries – and indirect (invisible) – associated expenses. In a study of economic burden of glaucoma among 120 Nigerian IWG, Adio and Onua[15] report an average monthly direct cost of £20 (N6,000) for antiglaucoma medication and with added indirect cost, increased to £52.7 (N15,810) per IWG. Also, two-thirds (80) of the IWG (66.7%) visited the eye clinic monthly and the cost of glaucoma surgery was £137.7 (N41,310).

Based on the finding, a conservative monthly cost implication of treating an IWG is £40 (N12,000). Thus, an IWG would require a conservative estimate of £480 (N144,000) per year. Suppose 1 million Nigerians require glaucoma treatment per year, this estimate would be £480 million (N144 Billion). There is likely a yearly increment due to increasing populating and improving life expectancy. Cumulatively, over an estimated life-time treatment period of 40 years for the IWG the cost implication is huge and beyond what Nigeria's economy would sustain. Even at present, expending £480 million (N144 billion) on glaucoma treatment alone would implies Nigeria's health budget for the year 2015 would need to be supplemented and without attending to other important health needs.

Nonetheless, a Nigerian state should be able to support the glaucoma treatment per citizen with £20 (N6 000) monthly. Funding glaucoma treatment of its citizens should be considered a social service with positive impact on QOL and potential for huge economic returns. This would necessarily means the real cost Nigeria public would spend on each IWG is far less than £20 (N6 000) in the final analysis considering the potential benefits – preservation of

flourishing life, ability to contribute to economy, tax remittance. However, using the opponent's analysis to excuse Nigeria's funding glaucoma amounts to trade-off IWG's vision for blindness because funding would encourage treatment compliance to preserve vision unlike plausible blindness from lack of treatment. The fact remains that vision is invaluable, priceless.

Challenge of growing Nigeria's population and increasing life expectancy

To the opponent of public funding, *increasing life expectancy among Nigerians* would be a serious challenge to Nigeria's funding of glaucoma as POAG is common above age 35 years. This translates to more IWG for glaucoma treatment for as long as they live. Generally, human medical care needs are more toward the last years of life which on average is more than 25% of acute healthcare costs spent by each individual throughout life.[16] Remarkably, this rather is useful information to estimate the number of citizens that would plausibly require glaucoma care rather than a serious challenge to its funding.

Rising cost of glaucoma treatment and manpower training over time

Furthermore, the opponent may oppose glaucoma funding for *fear of likely rising cost of glaucoma treatment over time*. The rising costs can occur from advances in equipment for early detection, investigating, and monitoring the IWG as well as novel drugs and techniques in treating glaucoma. There would be complementary manpower training to manage new equipment and treatments with plausible increasing cost of glaucoma treatment. Of course, the IWG would challenge Nigeria's health care to do more through their increasing expectations assuming right to free and comprehensive health care.

Nonetheless, advances in glaucoma management are signs of development toward the IWG's and public good. Arguably, new technology may even be more cost effective, proven cost benefit, cost saving, and eventually plausibly without serious challenge to public funding glaucoma treatment. Glaucoma funding can stimulate advocacy for universal funding of other diseases of public health importance with eventual benefit to society because healthy citizens would plausibly be productive, thus helping the nation. Funding would plausibly create job opportunity for many jobless Nigerians because there would be need to recruit manpower for glaucoma treatment.

Rising cost of remuneration for health personnel and clients' compensation over time

In addition, opponent may oppose public funding of glaucoma treatment in Nigeria because of *necessary accompanying rising overall remuneration of personnel* that would be engaged to deliver glaucoma treatment. Public funding of health conditions is associated with changes in spending. For instance, the proportion of NHS budget on secondary care has decreased while more are now spent on primary care and preventive medicine. Also, more than half of all NHS resources is spent on salaries,[17] and, particularly general practitioners, these have increased above the rate of inflation in recent years. Furthermore, clinical negligence claims represent a significant drain on NHS funds.

Finally, the problem of healthcare funding appears universal as Hall[18] observes that giving a whole population optimal access to health care would consume the entire resources of a nation. A study even estimates that providing all the health care that could be beneficial to each French citizen would cost five-and-a-half times France's gross national product.[19] It is impossible to give what one does not have and remains doubtful if Nigeria, a resource-limited economy, can afford qualitative glaucoma treatment for its citizens. However, this appears a pessimist and defeatist position on a vital health issue because every worthy cause has its own price. Definitely, funding glaucoma would not be without its challenges but the gain in preserving the IWG's dignity is invaluable.

Conclusion

The alleged factors against public funding glaucoma treatment are highlighted. The opponents argued against funding relying on complexity of glaucoma disease, the antiglaucoma drugs' side effects, poor level of glaucoma awareness, and education among Nigerians, inadequate resources for glaucoma care, relative low priority of glaucoma to other diseases from QALY and utilitarian considerations, the cost implication of glaucoma treatment, and the capability of Nigeria to fund it.

Nonetheless, public funding glaucoma is a worthwhile venture in view of treatment potential to preserve life-long useful vision which facilitates the IWG's dignity, enabling flourishing life. The complexity of glaucoma should rather attract funding than nonfunding. Rather than rejecting a deserved glaucoma funding on discriminatory and inhumane grounds of QALY and utilitarianism, a reasonable compromise should be a public-funded glaucoma care and other diseases of public health importance through a general health insurance policy. An appropriate management of Nigerian resources would enable it to fund required social services, including universal health care. Therefore, the opponent's allegation that Nigeria lacks economic capability to fund glaucoma treatment is not genuine and only occurs because of mismanagement. Importantly, vision is priceless and necessary to flourishlife.

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Conflicts of interest

There are no conflicts of interest.

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