

Original Article

Prevalence of Visual Impairment Among the Destitute in Onitsha, Southern Nigeria

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ABSTRACT

Background: Visual impairment is a global problem. The World Health Organization (WHO) in 2017 estimated that 36 million people were blind and 217 million people had moderate or severe visual impairment. An untreated or undetected eye problem becomes a threat to the general health of the individual, particularly the health of those that lack the basic needs of life. Most blind people live in low-income countries where increasing poverty perpetuates destitution. **Aim:** This study aimed at determining the prevalence of visual impairment among the destitute in Onitsha metropolis, which would provide a solid database for designing an effective eye care delivery system for them in the state. **Subjects and Methods:** This was a cross-sectional study of 168 destitute individuals in Onitsha. The study was carried out between June and July 2011. Destitute clusters were randomly selected, and all of the eligible participants were interviewed. Presenting visual acuity (VA) at 6 m, refraction, and anterior and posterior segment evaluation were done. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 16. **Results:** One hundred sixty-eight destitute individuals—consisting of 93 males (55.4%) and 75 females (44.6%)—were studied, and the age range was 11–78 years with a median age of 45 years. One hundred twenty-nine participants (76.8%) did not have any formal education, all were unemployed, and none had any personal assets or property. Fifty-six participants (33.3%) had ocular disorder. The prevalence of blindness was 12.5% and that of visual impairment was 10.2%. The causes of blindness were glaucoma (6, 28.6%), cataract (5, 23.8%), corneal acuity (5, 23.8%), and empty socket from tumor nucleation and trauma (2, 9.5%). **Conclusion:** Ocular findings in all eyes of the destitute are similar to that in the eyes of normal individuals. Destitution is an offshoot of health, social, and economic frustration, and therefore requires a comprehensive approach.

KEYWORDS: Blindness, destitution, southern Nigeria, visual impairment

INTRODUCTION

The Nigerian National Blindness and Visual Impairment Survey conducted in 2005–2007 estimated that 1.13 million people (4.2%) aged 40 years and older were blind (presenting a visual acuity [VA] worse than 3/60) due to a variety of causes. A further 3.12 million adults (15.7%) aged 40 years and older were visually impaired (presenting a visual acuity worse than 6/18 and better than 3/60). Thus, a total of 4.25 million Nigerian adults aged

40 years and older were visually impaired or blind. The prevalence of blindness in all ages from this same study was 0.78%.^[1]

The World Health Organization (WHO) in 2017 estimated that 36 million people were blind and

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217 million people had severe or moderate visual impairment.^[2] It was also found that about 85% of all visual impairment across the world was preventable or curable. When an eye problem is undetected or untreated, it becomes a threat to the general health of the individual, particularly the health of those in abject poverty. Most blind people live in low-income countries where increasing poverty perpetuates destitution.^[2]

Ribadu and Mahmoud^[3] in a study of 85 blind and destitute individuals living in four wards of Maiduguri, northern Nigeria, reported that the subjects' existence in poverty and destitution was directly related to their blindness. The Millennium Development Goals (MDGs) also linked poverty and eye health in a population study conducted by The International Centre for Eye Health, during a 2005–2007 survey among adults in Kenya, Philippines, and Bangladesh.^[4] Poverty therefore predisposes one to blindness. On the other hand, blindness could also lead to poverty—a vicious cycle that plunges visually impaired people and their families into severe deprivation.

Destitution is associated with an abject lack of the basic necessities of life (food, clothing, money, and shelter) and a lack of the zeal to cope with the socioeconomic challenges of daily life. Eye problems that are easily treated in the non-destitute are often complicated and sight-threatening among the homeless. The destitute have the same eye problems as the non-destitute, but theirs are more exaggerated. Without a home, there is no place to recuperate from an illness or treat an injury, and eye problems tend to get worse before any meaningful intervention is obtained.

Some scholars have examined the various factors that put people at risk of destitution;^[3,5,6,7,8,9,11] these factors include extreme poverty, illiteracy, lack of health insurance, expensive housing, low wages, communal strife, drug or substance abuse, and insurgency. In Nigeria, these factors are direct manifestations of political, economic, and social instability and have led to a progressive increase in the destitute population in all parts of the country.

These destitute individuals are found in Onitsha and most Nigerian cities in clusters begging for alms along busy streets, bus stops, big potholes, police checkpoints that slow traffic, churches, markets, motor parks, and charity houses. The actual number of destitute individuals in Nigeria or Anambra state is not well documented, but their increasing presence reflects extreme poverty, frustration, and a lack of self-worth with consequent severe health and socioeconomic

burden. Eye diseases among the destitute from various causes could lead to poor vision or even blindness, and blindness could also lead to destitution. To the best of the author's knowledge, this destitute population was not considered in the Nigerian National Blindness and Visual Impairment Survey conducted in 2005–2007 regardless of their valid citizenship. This study is therefore aimed at determining the prevalence of visual impairment among these destitute individuals in Onitsha metropolis, which would hopefully provide a solid database for designing an effective eye care delivery system for them.

MATERIALS AND METHODS

Ethical approval for the study was obtained from the Ethics Committee of Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria. It was a cross-sectional study conducted among the destitute in Onitsha metropolis, Anambra state, Nigeria between June and July 2011. The destitute clusters were randomly selected and all of the participants in the clusters were interviewed using pretested, structured interviewer-administered questionnaire (administered in Pidgin English and Igbo languages, as applicable). Information was sought on sociodemographic variables including age, sex, marital status, educational attainment, previous employment status, sources of social and financial support, possession of personal assets or properties, and estimate of average monthly income in relation to needs.

Ocular examination included presenting visual acuity (VA) at 6 m with Snellen's chart in normal daylight, refraction with the streak retinoscope, anterior segments using the pen-torch and a 3 × magnifying loupe, and a direct ophthalmoscope for the posterior segment. Diagnosis of glaucoma was based on the cup/disc ratio (CDR) >0.7 and intraocular pressure (IOP) >22.0 mmHg measured with Schiottz tonometer. These procedures were performed separately for each eye of the participants.

Data from the study was coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 16. The statistical tests employed were the Chi-squared test and the 95% confidence interval (CI) with significance level at <0.05.

RESULTS

A total of 168 destitute participants—consisting of 93 males (55.4%) and 75 females (44.6%)—were included in the study. The age range was 11–78 years and the median age was 45 years. Persons aged 30 years and younger constituted 26.8% among whom 8 (4.8%) were less than 18 years of age while 29.7% were

older than 60 years [Table 1]; 95 (56.5%) were single, 50 (29.8%) married, 13 (7.7%) widowed, 9 (5.4%) separated, and 1 (0.6%) divorced. Twenty-three (13.7%) participants were from families within Onitsha, 30 (17.9%) outside Onitsha but within Anambra state, 107 (63.7%) from other states of Nigeria, and 8 (4.8%) were non-Nigerians (from neighboring African countries).

One hundred twenty-nine participants (76.8%) did not have formal education; 36 (26.4%) had primary education and only 3 (1.8%) had secondary education. At the time of the study, all were unemployed and none had any personal asset or property. Fifty-six participants (33.3%) had ocular disorders. Other physical deformities or health challenges included cripple (37, 22.7%), leg ulcers (4, (2.4%), and hernias (3, 1.8%). There were no obvious deformities in 68 participants (40.5%). Most of the child beggars had no obvious deformity except one who was blind, but others accompanied the older destitute individuals. None had any social or economic support from family, government, or non-governmental organizations (NGOs). All of the participants begged for alms on the street to sustain their livelihood.

Fifty-six (33.3%) participants had ocular disorders. The prevalence of blindness was 12.5% (95% CI = 11.9–13.1), and the prevalence of visual impairment was 10.2% (95% CI = 9.6–10.8). Twenty-one participants (12.5%) were blind (VA <3/60 in the better eye) and 17 (10.2%) had moderate-to-severe visual impairment [Table 2]. The causes of blindness were glaucoma (6, 28.6%), cataract (5, 23.8%), corneal opacity (5, 23.8%), and empty socket from tumor enucleation and trauma (2, 9.5%).

Table 3 shows a cross tabulation of the subjects versus the causes of visual impairment in the better eyes. Although more males had visual impairment, it was not statistically significant ($X^2 = 0.997$, $df = 1$, $P > 0.05$). Cataract (9, 52.9%) caused more than half of the visual impairments. Other causes of visual impairment were glaucoma (5, 29.4%), corneal opacity (2, 11.8%), and trauma (1, 5.9%). All the blind participants were above 30 years of age except one (4.8%) who had corneal blindness and was 16 years old. Also, those with moderate-to-severe visual impairment were adults over 30 years of age.

Ocular findings in all of the eyes [Table 4] were similar to that in the eyes of normal individuals. The leading ocular disorders were cataract (24, 37.5%), glaucoma (11, 17.2%), corneal diseases (10, 15.7%), and conjunctival diseases (7, 11.0%). Cataract caused more than half of visual impairments (9, 52.9%), and the most

Table 1: Age and gender distribution of the participants

Age in years	No. of males (%)	No. of females (%)	Total (%)
11-20	11 (6.5)	6 (3.6)	17 (10.1)
21-30	16 (9.4)	7 (4.3)	23 (13.7)
31-40	15 (8.9)	15 (8.9)	30 (17.8)
41-51	9 (5.4)	15 (8.9)	24 (14.3)
51-60	17 (10.1)	7 (4.2)	24 (14.3)
61-70	24 (14.3)	22 (13.1)	46 (27.4)
>70	1 (0.6)	3 (1.8)	4 (2.4)
Total	93 (55.3)	75 (44.7)	168 (100)

Table 2: Presenting visual acuity

Presenting visual acuity (VA) in Better Eye	Level of visual function	No. (%)
>6/18	Mild or No VI	130 (77.3)
<6/18-6/60	Moderate VI	14 (8.4)
<6/60-3/60	Severe VI	3 (1.8)
<3/60-LP	Blindness	8 (4.8)
NPL	Blindness	13 (7.7)
Total		168 (100)

Table 3: Gender of participants versus causes of visual impairment (VI) in the better eye

Causes of VI	Gender		Total (%)
	No. of males (%)	No. of females (%)	
Cataract	5 (29.4)	4 (23.5)	9 (52.9)
Glaucoma	2 (11.8)	3 (17.6)	5 (29.4)
Corneal opacity	1 (5.9)	1 (5.9)	2 (11.8)
Trauma	1 (5.9)	0 (0)	1 (5.9)
Total	9 (52.9)	8 (47.1)	17 (100)

Table 4: Ocular findings in all eyes

Ocular Findings	No.	%
Cataract	24	37.5
Glaucoma	11	17.2
Corneal opacity	9	14.2
Infective conjunctivitis	6	9.2
Phthisis bulbi	4	6.3
High myopia	3	4.6
Diabetic retinopathy	2	3.1
Empty socket	1	1.6
Age-related macular degeneration	1	1.6
Corneal ulcer	1	1.6
Allergic conjunctivitis	1	1.6
Total	64	100.0

common causes of blindness were glaucoma (6, 28.6%), cataract (5, 23.8%), and corneal disease (5, 23.8%).

DISCUSSION

The result of the present study suggests that 10.2% of the destitute have visual impairment with 12.5% being blind. This prevalence of blindness is much (3 times)

higher than that of blind adult Nigerians (4.2%) in the Nigerian National Blindness and Visual Impairment Survey,^[1] but similarly the blind destitute were mostly adults aged 30 years and older. Without a home, there is no place to recuperate from illnesses or treat an injury. Eye diseases that are easily treated at other income levels are often complicated and sight-threatening among the homeless. Daniel^[7] studied 183 destitute individuals in Gbagada, Lagos, Nigeria and reported that 45% had ocular disabilities. The present study reported a lower prevalence of 33.3% for all ocular disorders.

Sabo^[6] in Kano, northern Nigeria reported a lower prevalence of 11.7% in a state survey of 82,112 street beggars. Street begging in Kano may have more to religious and cultural inclination like the “pupils in non-western schools” without obvious physical health challenges and as such explains the high number of destitute individuals and lower prevalence of visual impairment. Thapa *et al.*^[10] in Dharran municipality, Nepal, also reported a prevalence of 25% of eye problems among street children aged 11–15 years. The variations in the above findings could be attributed to the difference in setting, sample size, and different age ranges of the participants. Although this study was conducted among the destitute population aged 11–78 years, a majority of them who were visually impaired were adults aged 40 years and older.

The pattern of visual impairment among the destitute participants, where cataract and glaucoma were the leading causes of impairment, is similar to findings (cataract [48%], glaucoma [14.1%], and xerophthalmia [23.5%]) by Ribadu and Mahmoud^[3] in a study among blind beggars in Maiduguri, northern Nigeria. The slight disparity could be attributed to the difference in the sample size studied.

In the present study, male participants had a higher prevalence of visual impairment (52.9%) than female participants (47.1%). However, the difference with respect to gender was not statistically significant. Katz *et al.*^[12] also studied the prevalence of visual impairment among destitute individuals in Baltimore and recorded no gender difference. Bassuk *et al.*,^[13] in a similar study in New York, also observed no gender difference but argued that gender played a role in the extent of social and economic hardship of the destitute population. Bassuk^[14] also reported that destitute women faced the same social and economic problems as men but in an intensified form due to social marginalization of women and the responsibility of parenthood often borne by them alone.

Cataract and glaucoma were the two leading causes of visual impairment and blindness among the participants

in the present study, which also reflects the prevalence in the general population. Surgical intervention is recommended for vision restoration or prevention of visual loss for cataract cases, but the benefits of surgery in glaucoma are dependent on the stage of the disease; for instance, surgery could stem the tide of visual deterioration for early glaucoma but may not be beneficial in advanced cases. Therefore, the importance of counselling and health education of both patients and their relatives cannot be overemphasized.

Nwosu^[15] noted that the low rating the people of rural Anambra state had for eye surgery as reflected in the findings of this study, where 40.3% would not submit themselves to eye surgery and 18.4% and 8.6% respectively viewed surgery as frightening or useless. Another study in Ibadan^[16] showed that only 18% of glaucoma patients would accept surgery as a treatment option. Effort must therefore be made toward improving acceptability of eye surgery by creating awareness and through promotion of relevant health education. In this present study, refractive errors (high myopia) detected in 3 (4.7%) of the subjects led to visual impairment and remained uncorrected. Similar efforts must be made in the provision of spectacle correction at a subsidized price for those with refractive errors. If these sight-restoring steps are adequately considered as the first stage in the rehabilitation process, some of the destitute would regain their sights which would provide better opportunity for more enduring psychosocial and economic rehabilitation.

In conclusion, destitution is an offshoot of health, social, and economic frustration and therefore requires a comprehensive approach. Thus, there is an urgent need for effective mobilization of destitute individuals off the street and the establishment of a destitute registry for adequate eye health and socioeconomic welfare or rehabilitation schemes at all tiers of the government. The findings of the present study will be helpful in the planning and implementation of eye health services for the destitute in Nigeria.

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Conflicts of interest

There are no conflicts of interest.

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