

Determinants of the Acceptability of Cataract Surgery in the Community of Sakete, Benin



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Summary

Introduction: Cataract is the leading cause of curable blindness in the world and particularly in West Africa. Its treatment is essentially surgical. The treatment generates costs which are not always within the reach of the population, hence free cataract surgery. The objective was to study the determinants of the acceptability of cataract surgery in the commune of Sakété.

Study method: This was a cross-sectional study with descriptive and analytical aims which took place from June 21 to July 5, 2023 at the Sakété-Ifangni zone hospital. We carried out an exhaustive recruitment of all patients who came for cataract screening. The prevalence ratio followed by its 95% confidence interval was the measure of association used at the 5% significance level.

Results: A total of 214 respondents were included in the study. The mean age of the patients was 59.92 ± 15.58 years. The female gender predominated with a sex ratio of 0.84. The free cataract surgery campaign was accepted by 204 participants. The main factors influencing the acceptability of free cataract surgery were profession ($p=0.0470$), marital status ($p=0.0171$), level of education ($p=0.0010$), medical, surgical ($p=0.0001$) and family history ($p=0.0001$), lack of insurance ($p=0.0001$), distance between home and hospital ($p=0.0360$).

Conclusion: Free field cataract surgery is well accepted by the population in this region.

Abstract

Context: Cataract is the leading cause of treatable blindness worldwide, particularly in West Africa. Its treatment is solely surgical. The cost of treatment is often beyond the reach of the population, hence the provision of free cataract surgery. The objective was to study the determinants of the acceptability of cataract surgery in the municipality of Sakété.

Study Method: This was a prospective cross-sectional descriptive and analytical study conducted from June 21, 2023, to July 5, 2023, at the Sakété-Ifangni district hospital. A comprehensive recruitment of all patients coming for cataract screening was carried out. Relative risk (RR) along with its 95% confidence interval (CI) was the measure of association used at a significance level of 5%.

Results: A total of 214 patients were included in the study. The mean age of the patients was 59.92 ± 15.58 years. Females predominated with a sex ratio of 0.84. Of the 204 participants in the screening session, 77.94% accepted free cataract surgery, CI 95% = [71.62; 83.43]. Occupation ($p=0.0470$), marital status ($p=0.0171$), educational level ($p=0.0010$), medical history ($p=0.0001$), surgical history ($p=0.0001$), family history ($p=0.0001$), lack of insurance ($p=0.0001$), and distance between home and the hospital for care ($p=0.0360$) influenced the acceptance of surgery.

Conclusion: The overall profile of observed patients raises concerns about both the precariousness of the healthcare system and that of the populations.

Keywords: Cataract; Free surgery; Acceptability; Determinants; Sakété (Benin)

Introduction

Vision plays an essential role in various aspects of daily life, ranging from participation in the labor market to the enjoyment of social and cultural activities [1-3]. It is also crucial for maintaining

social contact, independence and managing other health problems [1,3,4]. Visual impairment is a major global problem, affecting at least 2.2 billion people, of which one billion could be prevented or left untreated [1]. This burden falls disproportionately on low-

income countries, older people, women and rural communities [1]. Cataract, a clouding of the lens, is a major cause of visual impairment, but is treatable with surgery [1]. However, many people do not benefit from this intervention, leading to worsening visual impairment and functional limitations [1]. The quality of life of people with visual impairment is severely affected, with higher rates of depression, anxiety and reduced labor force participation [1,3,5].

In older adults, this can lead to social isolation, mobility difficulties and an increased risk of falls and fractures [1,6,7]. In the commune of Sakété, Benin, cataract is the main cause of blindness, particularly among people aged 50 and over [8]. Despite this high prevalence, the acceptability of cataract surgery remains a challenge. Understanding the determinants of this acceptability is crucial to improving access to eye care. One of the reasons for the low acceptability of cataract surgery is financial barriers, with high costs associated with surgery and postoperative rehabilitation [1].

Additionally, gaps in health systems, such as lack of trained personnel and adequate infrastructure, hinder access to eye health services [1]. Cultural perception of cataract and eye surgery may also influence the acceptability of these interventions. Local beliefs and superstitions may dissuade people from opting for surgery, prompting them to seek traditional remedies or avoid treatment altogether [9]. Information and education about cataracts and their treatments are essential to counter these negative perceptions and promote the acceptability of surgery.

To address these challenges and improve the acceptability of cataract surgery, a holistic and multidimensional approach is necessary. This includes interventions to reduce financial barriers, strengthen health systems, raise awareness and educate communities about cataract and its treatments, and provide psychosocial support to patients. Thus, this study was initiated with a view to identifying the determinants of the acceptability of cataract surgery in the commune of Sakété in order to improve access to eye care and reduce the burden of avoidable blindness in this area. region.

Study Method

This was a cross-sectional study with a descriptive and analytical aim with a prospective collection of data ranging from June 21 to July 5, 2023, i.e. 15 days. It concerned all patients who participated in the screening and free cataract surgery campaign in the commune of Sakété during the study period. The sampling was exhaustive, systematically including all patients aged 18 or over who came for the screening campaign and who gave their free and informed consent. The dependent variable of the study was the acceptability of free cataract surgery. The independent variables were sociodemographic, economic, geographic characteristics and sources of information. Data collection was carried out using a pre-established survey form. The data were

then transcribed into an Excel table using Microsoft Excel 2016 software. The data were saved in csv format. The data were loaded into RStudio software v1.1.456. The variable of interest being binary and categorical, the statistical model chosen was a simple binary logistic regression. The association between the variable of interest and the independent variables was assessed using the Wald test. The significance threshold $p < 0.05$ was retained.

Results

Acceptability Rate of Free Cataract Surgery

During the cataract surgery campaign in the commune of Sakété, 204 participants met the selection criteria among the 214 people received, i.e. a participation rate of 95.32%. Among the 204 participants selected, 159 people accepted free cataract surgery, an acceptability rate of 77.94%.

Sociodemographic Factors and Acceptability of Free Cataract Surgery

The average age of the patients was 59.92 ± 15.58 years with extremes of 22 and 92 years. The age group from 64 to 71 years old was the most represented, i.e. 19.12% ($p = 0.114$). The female gender was predominant with a sex ratio of 0.84 ($p = 0.192$). The level of education limited to primary studies ($p = 0.0010$) and professional inactivity ($p = 0.030$) influence the acceptability of free cataract surgery in the commune of Sakété. Patients at the upper level were 1.50 times more accepting of free surgery than those at the primary level. Fishermen tend to accept free cataract surgery more (RP=1.50; [1.01; 2.23]) compared to artisans. Furthermore, married people were less accepting of cataract surgery than single people (RP=0.82; [0.70; 0.96]).

Table 1 presents the distribution of the acceptability of free cataract surgery in the commune of Sakété according to level of education, profession, religion and marital status. Personal history of high blood pressure and cataract surgery was found in 29.90% and 8.8% of subjects, respectively. Subjects with general comorbidities such as peptic ulcer and asthma were more supportive of free cataract surgery. Family history was not associated with acceptability of free surgery (Table 2).

Table 3 presents the reason for consultation and the signs of the physical examination. Functional signs such as tearing and headache were associated with acceptability for free cataract surgery.

Economic, geographic factors and acceptability of free cataract surgery. Nearly a third of patients, or 28.50%, refused to give an estimate of their monthly income. The majority of patients, i.e. 66.35%, had a monthly income level lower than the interprofessional minimum wage guaranteed in Benin which is worth 52,000 CFA francs at the time of the study. The majority, 96.71% of patients, did not have health insurance. More than half, or 65.88%, of patients did not have personal means of transportation. Patients who were cared for by their families

represented 52.33% of cases. Those who had administrative support constituted 2.35% of the study population. Availability of health insurance ($p < 0.001$) was associated with acceptability of eye surgery.

Table 4 presents the economic, geographic and acceptability factors of free cataract surgery.

Information sources and acceptability of free cataract surgery. The involvement of community relays and information via television ($p = 0.0003$) have a significant influence on the

acceptability of free cataract surgery (Table 5).

Multivariate Analysis

Table 6 presents the results of a multivariate analysis according to the factors associated with the acceptability of cataract surgery. Civil servants have a significantly lower probability of accepting free surgery compared to artisans. Additionally, the presence of cataract in both eyes is also associated with the acceptability of cataract surgery.

Table 1: Relationship between level of education, religion, monthly income and acceptability of free Sakété surgery, cataract surgery.

	NOT	Free surgery		PR [95% CI]	P-value
		Accepted not(%)	Refused not(%)		
Educational level					
Superior	12	12(100.00)	-	1	
Primary	33	22(66.67)	11(33.33)	0.66[0.52; 0.84]	0.001
Secondary	23	19(82.61)	4(17.39)	0.82 [0.68; 0.99]	0.0458
Unschooler	136	106(77.94)	30(22.06)	0.77 [0.71; 0.85]	<0.0001
Occupation					
Craftsman	12	8(66.67)	4(33.33)	1	
Unemployed)	58	55(94.83)	3(5.17)	1.40 [0.94-2.13]	0.0878
Trader	66	45(68.18)	21(31.82)	1.02 [0.66-1.57]	0.9189
Farmer	33	21(63.64)	12(36.36)	0.95 [0.59-1.53]	0.8481
Official	8	6(75.00)	2(25.00)	1.12 [0.63-1.98]	0.6833
Fisherman	1	1(100.0)	-	1.50 [1.01-2.23]	0.047
Religion					
Christian	147	120(81.63)	27(18.37)	1	
Atheist	3	2(66.67)	1(33.33)	0.81 [0.36; 1.82]	0.6214
Endogenous	5	3(60.00)	2(40.00)	0.73 [0.35; 1.50]	0.4018
Muslim	48	33(68.75)	15(31.25)	0.84 [0.68; 1.03]	0.1015
Marital status					
Bachelor	23	21(91.30)	2(8.70)	1	
Concubine	3	1(33.33)	2(66.67)	0.36 [0.07-1.81]	0.2186
Divorcee)	1	1(100.0)	-	1.09 [0.96-1.24]	0.1574
Bride)	147	111(75.51)	36(24.49)	0.82 [0.70-0.96]	0.0171
Widower (ve)	30	25(83.33)	5(16.67)	0.91 [0.74-1.11]	0.3796

Table 2: Relationship between the clinical aspects of the subjects surveyed and the acceptability of free surgery in Sakété.

	NOT	Free surgery		PR [95% CI]	P-value
		Accepted not(%)	Refused not(%)		
Personal medical history					
None	128	98(76.56)	30(23.44)	1	
Diabetes	7	5(71.43)	2(28.57)	0.93 [0.57-1.50]	0.7761
High blood pressure	61	49(80.33)	12(19.67)	1.04 [0.89-1.22]	0.5486

Peptic ulcer	3	3(100.0)	-	1.30 [1.18-1.43]	<0.0001
Asthma	4	4(100.0)	-	1.30 [1.18-1.43]	<0.0001
Other	1	-	1(100.0)	0.32 [0.02-3.61]	0.3623
Personal surgical history					
None	175	136(77.71)	39(22.29)	1	
Appendectomy	1	1(100.0)	-	1.28 [1.18-1.39]	<0.0001
Cataract	18	14(77.78)	4(22.22)	1.00 [0.77-1.29]	0.9951
Caesarean section	2	1(50.00)	1(50.00)	0.64 [0.16-2.57]	0.5335
Inguinal hernia	8	7(87.50)	1(12.50)	1.12 [0.85-1.48]	0.3957
Family history					
None	100	79(79.00)	21(21.00)	1	
Cataract	14	13(92.86)	1(7.14)	1.17 [0.98-1.40]	0.0735
Familial blindness	5	4(80.00)	1(20.00)	1.01 [0.64-1.58]	0.9563
Diabetes	5	5(100.0)	-	1.26 [1.14-1.40]	<0.0001
Other backgrounds	51	35(68.63)	16(31.37)	0.80 [0.70-1.07]	0.1917

Table 3: Presents the reason for consultation and the signs of the physical examination. Functional signs such as tearing and headache were associated with acceptability for free cataract surgery.

	NOT	Free surgery		PR [95% CI]	P-value
		Accepted not(%)	Refused not(%)		
Reason for consultation					
Visual decline	117	88(75.21)	29(24.79)	1	
Headache	2	2(100.00)	-	1.32 [1.19-1.47]	<0.0001
Eye pain	71	57(80.28)	14(19.72)	1.06 [0.91-1.24]	0.4104

Tearing	1	1(100.00)	-	1.32 [1.19-1.47]	<0.0001
Blurred vision	13	11(84.62)	2(15.38)	1.12 [0.87-1.45]	0.3635
Symptom duration (years)					
<2	57	39(68.42)	18(31.58)	0.83 [0.69; 1.01]	0.072
> 2	147	120(81.63)	27(18.37)	1	
Laterality					
Right eye	135	110(81.48)	25(18.52)	1	
Left eye	63	46(73.02)	17(26.98)	0.89 [0.75; 1.06]	0.2068
Right and left eye	6	3(50.00)	3(50.00)	0.61 [0.27; 1.37]	0.234

Table 4: Economic, geographic factors and acceptability of free cataract surgery.

	NOT	Free surgery		PR [95% CI]	P-value
		Accepted not(%)	Refused not(%)		
Health Insurance					
Yes	6	6(100.00)	-	1	
No	198	153(77.27)	45(22.73)	0.77 [0.71-0.83]	<0.0001
Payment method					
Family	107	90(84.11)	17(15.89)	1	

Myself	94	67(71.28)	27(28.72)	0.84 [0.72-0.98]	0.0333
Health Insurance	3	2(66,67)	1(33,33)	0.70 [0.35-1.77]	0.5711
Distance					
0-50	104	77(74.04)	27(25.96)	1	
51-100	48	42(87.50)	6(12.50)	1.18 [1.01-1.38]	0.036
>100	52	40(76.92)	12(23.08)	1.03 [0.86-1.25]	0.6893

Table 5: Presents information sources and acceptability of free cataract surgery.

	NOT	Free surgery		PR [95% CI]	P-value
		Accepted not(%)	Refused not(%)		
Information source					
Mouth/ear	59	46(77.97)	13(22.03)	1	
Radio	93	72(77.42)	21(22.58)	0.99 [0.83-1.18]	0.937
Community relays	7	7(100.00)	-	1.28 [1.11-1.46]	0.0003
Social networks	42	31(73.81)	11(26.19)	0.94 [0.75-1.18]	0.684
Television	2	2(100.00)	-	1.28 [1.11-1.46]	0.0003

Table 6: Multivariate analysis according to factors associated with the acceptability of cataract surgery.

	ORa	95% CI	P-value
Occupation			
Official	0.01	[0.01; 0.29]	0.011
Artisan	1	--	--
Laterality			
Right and left eye	0.04	[0.01; 0.46]	0.009
Right eye	1	--	--

Discussion

Sociodemographic Factors

The average age of the patients which was 59.92 ± 15.58 years is comparable to those reported by Amedome et al. [8] in Sakété in 2017, Alpha Bio et al. [10] in Nikki du Bénin in 2022 which are respectively of 62.61 years and 62.8 ± 12.7 years. Furthermore, Mehari et al. [11] in Ethiopia found a median age of 61 years, and Fadamiro et al. [12] in Nigeria obtained a mean age of 64.8 ± 16.5 years, close to ours. However, other studies, notably those by Zhang et al. [13] in China and Prem Kumar et al. [14] in India have reported higher mean ages, perhaps reflecting differences in environmental factors. The differences observed in these average ages between our study and those carried out outside Africa would be attributable to sunshine which favors cataracts at an earlier age due to the anticipation phenomenon [15].

We observed a female predominance of 54%, with a sex ratio (M/F) of 0.85. This result is consistent with the work of Fadamiro et al. [12] and Prem Kumar et al [14], who respectively reported

a female predominance of 51.5% and 57%. Zhang et al. [13] also observed a female predominance of 73.8%. On the other hand, Alpha Bio et al. [10] in Nikki in northern Benin in 2022 found a male predominance of 58.5%, as did Bizuneh et al [16], who also found a male predominance of 53.1%. This female predominance can be partly explained by the majority proportion of women in Sakété according to the 4th general population and housing census of 2013 in Benin [17], as well as by the increased vulnerability of women in rural areas. , where living conditions are precarious. These findings are consistent with the global report [1] on vision, indicating a higher incidence of cataracts among women in West Africa. Commerce was the most prevalent profession, accounting for 32.71% of cases, a result similar to that of Fadamiro et al [12], who also identified commerce as the dominant profession at 36.4%.

In contrast, Alpha Bio et al. [10] in Nikki in northern Benin in 2022 [10] found that the majority of its patients were farmers, representing 49.2% of cases. This predominance of traders can be explained by the proximity of the commune of Sakété to the Nigerian border, favoring commercial exchanges. In our series,

out-of-school patients represented 66.67% of the sample. These results are comparable to those of Fadamiro et al. [12], who reported that 44.7% of their study population were illiterate, and that 32.6% had a primary education level. Mehari et al. [11] observed in their work that 86.3% of patients were illiterate, while Zhang et al. [13] reported an illiteracy rate of 50.9%. The low level of schooling is a concern, but such low rates have already been identified in previous national demographic surveys.

The results of the multivariate analysis suggest that profession plays a significant role in the acceptability of cataract surgery. Indeed, civil servants have a significantly lower probability of accepting surgery compared to artisans. Indeed, civil servants have partial administrative health insurance facilitating access to care in public hospitals. Other factors such as socio-economic differences, education levels and different perceptions of health and medical care could be considered in the face of this disparity. Married patients represented 72.06% of the study population, a result close to that of Prem Kumar et al. [14], who reported 79.3% married patients. Alpha Bio et al. [10] also reported that the majority, 89.2% of patients, were married.

Clinical Aspects

The prevalence of visual decline as the dominant symptom in 57.35% of patients in our study is consistent with those reported in the literature. Alpha Bio et al. [10] and Akowuah et al. [18] also observed high proportions of patients reporting visual decline, with 76.9% and 50.93%, respectively. These findings are consistent with the characteristic nature of cataract, where opacification of the lens results in progressive visual decline. The average duration of symptoms was 4.74 ± 4.21 years with extremes of 3 months to 8 years. This result is similar to that of Fadamiro et al. [12], who also observed a duration of symptoms ranging from 3 months to 8 years. Prem Kumar et al. [14] reported that 99.3% of patients had symptoms for at least 2 years. Similarly, Alpha Bio et al. [10] found a duration of 2 years or more in 54.6% of patients. The prolonged duration of symptoms, as observed in our study and others, may be attributable to several factors.

First of all, cataracts are a progressive disease that progresses slowly over time. Many patients can therefore tolerate visual symptoms for many years before seeking treatment. Additionally, the common perception of cataracts as a normal part of aging may lead some patients to not view symptoms as requiring immediate medical intervention. Some authors such as Zhang et al. [13] and Prem Kumar et al. [14] observed a decrease in visual acuity in 69.6% and 88.5% of their populations respectively, highlighting the high prevalence of this symptom in various geographical contexts. This highlights the clinical importance of visual decline as a key indicator for cataract screening and diagnosis.

This finding also reinforces the urgency of providing rapid access to cataract surgery for patients with significant visual decline, in order to restore their quality of life and prevent further deterioration of their visual acuity. In summary, the high

prevalence of visual decline in our study, correlating with previous findings, highlights the importance of early detection and surgical intervention to alleviate the debilitating effects of cataract on patients' vision.

Only 7.48% of patients were being monitored for previous eye problems, while 36.41% had comorbidities such as high blood pressure and diabetes. These conditions are well-established risk factors for cataract development, as reported by Mylona et al. [19], who found that 98.4% of their patients had either high blood pressure or diabetes. Yu et al. [20] also identified high blood pressure as a risk factor for cataract, while Leske et al. [21] reported that high blood pressure, diabetes and abdominal obesity were associated with increased the risk of cataracts in black subjects.

However, Alpha Bio et al. [10] identified lifestyle, particularly smoking (46.9%) and alcoholism (43.8%), as risk factors for cataract. These results highlight the importance of taking into account comorbidities and lifestyle habits in assessing the risk of cataract in patients. A holistic approach to eye health, integrating management of cardiovascular risk factors and lifestyle, may be crucial in preventing the development and progression of cataracts, thereby improving individuals' quality of life.

In the majority of cases, a unilateral cataract was observed, affecting the right eye in 66.18% of cases and the left eye in 30.88% of cases. This finding is consistent with the results of Alpha Bio et al [10], who also reported a high prevalence of 85.4%. On the other hand, Mehari et al [11], Fadamiro et al [12], as well as Zhang et al [13], respectively reported proportions of bilateral cataracts of 30.2%, 30.3%, and 31%.

It is important to note that although the majority of cases are unilateral, a significant proportion of bilateral cataracts have been reported in other studies. This diversity in clinical presentation highlights the importance of conducting a comprehensive evaluation of each patient to determine the best treatment plan.

Additionally, the presence of cataracts in both eyes is associated with decreased acceptability of surgery. This finding is important because it highlights the importance of considering the severity of the eye condition when evaluating the acceptability of surgery in patients with cataracts. It is possible that patients with more severe symptoms or bilateral cataracts may be more concerned about the risks and burdens associated with surgery, which could influence their decision.

Economic and Geographic Factors

In 66.35% of cases, the monthly income was lower than the guaranteed interprofessional minimum wage which is 52,000 CFA francs in Benin. Which reflects a level of economic precariousness. This finding is similar to that of Mehari et al. [11], where 96% of patients had a monthly income of less than 10,421 CFA francs. Additionally, 28.95% of patients were unemployed, completely dependent on their families for care. This unemployment rate is

lower than that reported by Prem Kumar et al. [14], where 51.4% of patients were unemployed. This difference could be explained by the fact that many patients worked in the informal sector and did not have a retirement pension.

Among the obstacles to access to care in the region, the lack of means of transport (65.88%) and distance play a major role, with more than 50 km to travel for 74.29% of patients. These findings highlight the challenges patients face when seeking access to eye care, particularly in rural or remote areas. The need for policies and programs to improve geographic and financial accessibility to eye health services is therefore crucial to ensure that all individuals, regardless of their economic or geographic circumstances, can benefit from adequate treatment for eye conditions. ocular problems, including cataracts.

Source of Information

The involvement of community relays no longer needs to be demonstrated in the success of health programs in the community. Indeed, community relays make it possible to strengthen the process allowing communities to participate in the management of their own health.

Conclusion

The general profile of the patients observed poses the problem of precariousness, not only that of the health system but also that of the populations. It is important to make eye care services accessible to reduce the burden of blindness in our communities.

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