ClinicSearch

Clinical Trials and Case Studies

Rizwana Shahid *

Open Access

Research Article

Willingness to pay & Barriers to cataract surgery among patients presenting to Munawar Memorial Hospital Chakwal

Humaira Liaqat [1], Iqra Khalil [2], Rizwana Shahid [3]*, Sajjad Haider [4]

[1]Final year student of BSc (Hons) Optometry & Orthoptics, Munawar Memorial Hospital & College of Optometry Chakwal.

[2]Optometrist, Munawar Memorial Hospital & College of Optometry Chakwal.

[3]Assistant Professor Community Medicine, Rawalpindi Medical University, Rawalpindi.

[4]Medical Director, Munawar Memorial Hospital Chakwal.

***Correspondence Author:** Rizwana Shahid, Assistant Professor Community Medicine, Rawalpindi Medical University, Rawalpindi.

Received Date: October 25, 2024 | Accepted Date: November 11, 2024 | Published Date: November 20, 2024

Citation: Humaira Liaqat, Iqra Khalil, Rizwana Shahid, Sajjad Haider, (2024), Willingness to pay & Barriers to cataract surgery among patients presenting to Munawar Memorial Hospital Chakwal, *Clinical Trials and Case Studies*, 3(6); **DOI:**10.31579/2835-835X/094

Abstract:

Objectives: To determine the willingness to pay and barriers to cataract surgery among patients presenting to Munawar Memorial Hospital Chakwal.

Subjects & Methods: A cross-sectional descriptive hospital-based study was carried out among 110 cataract patients who visited Ophthalmology OPD during July-September 2022. The cases were enrolled in the study through consecutive non-probability sampling. The data was gathered pertaining to socio-demographic variables, willingness to pay and familiarity with cataract surgery. The data was also collected about family history of cataract, condition of eye like its visual acuity, visual examination, any systemic disease, fear of surgery and knowledge about purpose of surgery and bearable surgical expenditure. The data was analyzed by SPSS version 25.0 and Microsoft Excel 2016. Descriptive statistics were applied. Chi-square test was used to determine the association of willingness to pay with socio-demographic, familial and all clinical attributes. $P \leq 0.05$ was taken as significant.

Results: Of the 110 cataract cases in our study, most (65.5%) were females. Mean age of respondents was 58.4 ±21.6 years. Majority (66.4%) had unilateral cataract. Visual acuity of 61.8% was worse than 6/18. Around 78.2% knew about cataract surgery and 65.5% were willing to pay for surgery. Non-willingness to pay was attributed maximally to financial limitations while 2.63% were unaware of the surgical outcome. The patients were willing to pay around PKR. 11,500/-. Non-agricultural people, cases with better income and family support were more willing to pay for surgery with P = 0.02, 0.00 and 0.00 respectively. Moreover, cases having visual examination before surgery (P = 0.004) and knowing about purpose of surgery (P = 0.001) were positively willing to pay for cataract surgery.

Conclusion: Most of the cataract patients despite being resident of rural areas knew about cataract surgery. About one third of the cases were non-willing to pay for cataract surgery due to financial constraints and ambiguity about efficacy of surgery. Diverse surgical fee packages were given to 64.5% of the cases.

Keywords: cataract surgery ; willingness to pay, barriers; financial constraints

Introduction

Cataract is an ophthalmic disorder that is associated with loss of visual acuity. Cataract associated blindness has been reported in some of the untreated cases [1]. Global burden of cataract analyzed on large scale indicated it as the predominant cause of blindness among elderly people in developing countries [2]. Approximately 90% of the global visually impaired population resides in third world countries. About 50% of the cataract associated blindness prevail in developing regions of the world while only 5% of this blindness has been documented among developed nations [3].

2021-22 fact survey carried out in Pakistan revealed that its blind people constitute almost 4% of globally blind individuals [4]. Blindness and visual impairment in Pakistan are attributed to unawareness, inequitable and inaccessible healthcare services and non-affordability of healthcare by marginalized community [5]. Pakistan has been ranked third following India and Bangladesh with respect to blindness and more than 50% of it is related with cataract [6]. It has now been categorized as a major public health problem that drastically impacts the quality of life [7].

Various barriers to cataract surgery have been identified like waiting for maturity of cataract, fear of postoperative complication and financial constraints. On account of these obstacles, creating community health awareness, arranging medical camps for screening and financial aids to the deserving can prove beneficial in mitigating the incidence of cataract [8]. According to a mixed method study carried out among ophthalmologists of Ghana, Zambia and Ethiopia, the traveling distance to hospitals and lack of essential surgical tools have been acknowledged as the key barriers to cataract surgery [9]. A national survey among Marine fishing communities of Karachi revealed financial distress and apprehensions connected with eye treatment as the main impediments to eye care [10].

The data pertaining to barriers tackled by Pakistani population in accessing surgical care to visual impairments secondary to cataract is rather scarce. The present study is therefore aimed to investigate willingness to pay and barriers to cataract surgery among the patients visiting Ophthalmology department of Munawar Memorial Hospital Chakwal. There are numerous studies on prediction of visual acuity improvement among cataract cases postoperatively while pre-operative data on this issue is scarce. The results of this study would be impactful in terms of strategic planning by our policy makers and arranging the screening programs among vulnerable communities so that our healthcare professionals could facilitate the high-risk patients in attaining optimum guidance for prevention of this disease.

Subjects & Methods

A cross-sectional descriptive study was done among 110 diagnosed cataract patients who visited Ophthalmology OPD during July-September 2022. Cataract surgery is a procedure of replacing the opacified eye lens with an artificial lens and its incidence is expected to rise with aging [1]. The intraocular lens inserted can be optimized to rectify the patient's refractive error1. This study is based on thesis that was composed in partial fulfilment of BSc (Hons) Optometry & Orthoptics requirement. The patients were enrolled in the study through consecutive non-probability sampling. The data was gathered by means of self-administered structured questionnaire pertinent to socio-demographic variables, willingness to pay and familiarity with cataract surgery. The data was also collected about family history of cataract, condition of eye like its visual acuity, visual examination, any systemic disease, fear of operation and acquaintance about purpose of surgery. The patients were also asked for the endurable surgical expenditure. The barriers to cataract surgery in our study were monthly income, family support, information about purpose of surgery and fear of surgery. The data analysis was done by SPSS version 25.0 and Microsoft Excel 2016. Descriptive statistics were applied. Chi-square test was applied to determine the association of willingness to pay with socio-demographic, familial and clinical attributes. $P \leq 0.05$ was considered significant.

Results

Of the total 110 cataract patients enrolled in our study, 72 (65.5%) were females while 38 (34.5%) were females. Mean age of our study subjects was 58.4 ±21.6 years. Only 6 (5.5%) of the patients were below 40 years while rest of the 104 (94.5%) of the respondents were ≥ 40 years. Most (61.8%) of our patients had visual acuity worse than 6/18 as show below in Figure 1.

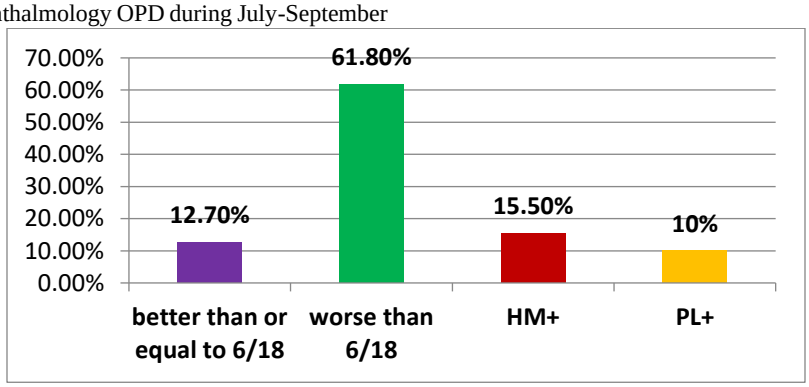

Figure 1: Visual acuity of cataract patients

Majority (78.2%) of our patients was familiarized with cataract surgery; however, around 65.5% of these were willing to pay for their cataract surgery. On inquiring the reasons for non-willingness to pay for cataract surgery among rest of the 34.5% study subjects, financial constraints turned out to be the main obstacle among 97.6% of the patients while 2.63% of the subjects were uncertain about the efficacy of the treatment. Only 39 (35.5%) of the patients were offered to get their cataract operated free of cost at Munawar Memorial Hospital. Different surgical fee packages were presented to the remaining 64.5% of the patients are depicted below in Figure 2.

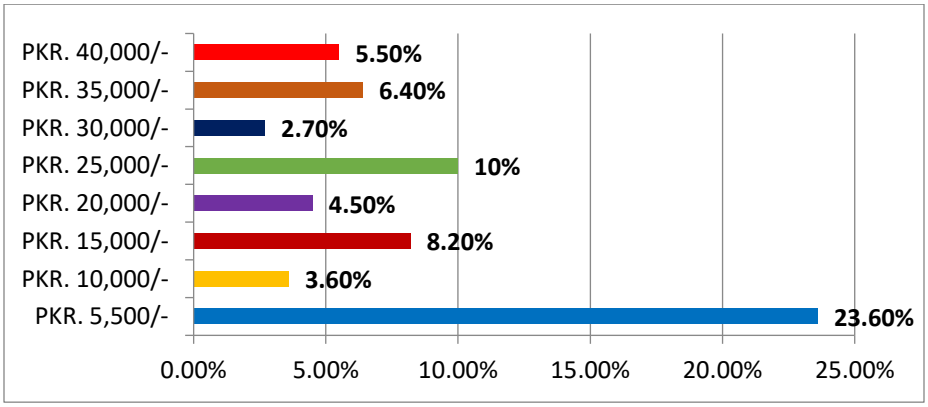

Figure 2: Cataract surgery fee packages offered to the patients

On an average, cataract patients were willing to pay around PKR. 11,500/-. On reviewing the association of willingness to pay with demographic variables of cataract patients, non-agricultural cases were more willing to pay (P 0.02) as illustrated below in Table 1.

Variables	Frequency (%)	P-value
Age		0.10
20-40 years	6 (5.5%)	
>40 years	104 (94.5%)	
Gender		0.71
Male	38 (34.5%)	
Female	72 (64.5%)	
Marital status		0.37
Married	62 (56.4%)	
Widow	45 (40.9%0	
Single	3 (2.7%)	
Residence		0.90
Rural	99 (90%)	
Urban	11 (10%)	
Occupation		*0.02
Agriculture	46 (41.8%)	
Non-agriculture	64 (58.2%)	
Working status		0.50
Retired	7 (6.4%)	
Still working	13 (11.8%)	
Unemployed	90 (81.8%)	
Monthly income		*0.00
< PKR. 30,000/-	16 (14.5%)	
PKR. 30,000-50,000/-	50 (45.5%)	
>PKR. 50,000/-	34 (30.9%)	
No source of income	10 (9.1%)	
Family history of cataract		0.43
Yes	85 (77.3%)	
No	25 (22.7%)	
Family support provided		*0.00
Yes	92 (83.6%)	
No	18 (16.4%)	

Table 1: Association of willingness to pay with socio-demographic variables and family attributes of cataract patients

However; on investigating the statistical association of willingness to pay for cataract surgery with clinical attributes of the patients, former visual examination and knowledge about the purpose of surgery seemed to be significantly associated with willingness to pay as revealed below in Table 2.

Table 2: Association of willingness to pay with clinical attributes of cataract patients

Variable	***Frequency (%)***	***P-value***
Visual acuity		*0.59*
≥ 6/18	*14 (12.7%)*	
Worse than 6/18	*68 (61.8%)*	
HM+	*17 (15.5%)*	
PL+	*11 (10%)*	
Visual examination beforehand		**0.004*
Yes	*91 (82.7%)*	
No	*19 (17.3%)*	
Cataract involving		*0.60*
One eye	*73 (66.4%)*	
Both eyes	*37 (33.6%)*	
Systemic disease		*0.10*
Yes	*63 (57.3%)*	
No	*47 (42.7%)*	
Fear of surgery		*0.70*
Present	*21 (19.1%)*	
Absent	*89 (80.9%)*	
Knowledge acquired about purpose of surgery		*0.*001*
Yes	*86 (78.2%)*	
No	*24 (21.8%)*	

****statistically significant association***

Discussion

Of the total 110 cataract patients in current study, most (65.5%) were females. Mean age of the cases was 58.4 ±21.6 years. A report by Mason K et al illustrated that females develop cataract relatively more due to post-menopausal decline of estrogen hormone and longer life expectancy [11]. An analysis of global burden of cataract carried out in 2019 revealed that elderly females with belonging to lower socio-economic status were more afflicted with this disease [12]. Similarly, females worldwide have been recognized relatively more with blindness and impaired vision due to cataract than those of males [13]. Geiger MD et al in his retrospective study done among Colorado cases demonstrated that traumatic and mature cataracts were comparatively more among males. On the other hand, greater proportion of females had pseudo-exfoliation. Moreover, due to gender-based variations in preoperative comorbidities that are linked with highest rates of complications in males [14]. Keeping in view sex-based variations in incidence of cataract, screening of vulnerable population should be planned and medical care should be provided by arranging camps to reduce propensity of this disease.

Most (61.8%) of the cataract cases in present study had visual acuity worse than 6/18. Only 12.7% patients had visual acuity equal to or better than 6/18, while 15.5% and 10% were able to perceive only hand movement and light respectively (Fig 1). A descriptive study among cataract patients of Khatam-Al-Anbia Eye Hospital concluded that cataract severity was markedly associated with reduction in visual acuity and contrast sensitivity [15]. Similarly, a retrospective Snellen's chart review of cataract cases illustrated worsening of best visual acuity by more than 3 lines among cataract patients pre-operatively [16]. Consistent with these findings, a descriptive study carried out among cataract cases presenting to a teaching hospital of Iraq revealed their late visit to the hospital as about 78.95% of the patients were diagnosed with severe impairment of visual acuity [17]. According to the results of another study, some cataract cases found glare from bright sunlight or car headlights more disabling and irritating than decline of their visual acuity [18]. According to the findings of a prospective study by Vingopoulos F et al, some of the cataract cases had considerable contrast deficit despite good visual acuity [19]. So, contrast sensitivity in addition to visual acuity should also be given due consideration by the ophthalmologist before surgical decision.

Willingness of cataract cases to pay for surgery in our study was significantly associated with their monthly income and family support as evident from Table 1. Other studies attributed non-willingness to pay for cataract surgery to financial constraints, fear of surgery, transportation issues and no support from their families [20]. Another cross-sectional study among Chinese cataract patients illustrated that willingness to pay for cataract surgery were greatly influenced by the income and family size of the cases [21]. Likewise, a study by Ding Y et al among elders specifically belonging to rural areas of China highlighted higher annual income, better education of children and self-reporting of severely poor vision as the predominant factors influencing their willingness to pay for cataract surgery [22].qualitative or mixed method studies to investigate the probable reasons of willingness to pay for cataract surgery region-wise can prove beneficial in differentiating between justifiable needs of the diverse groups of people.

The knowledge about the purpose of cataract surgery among cataract cases in present study seemed to have statistically significant association with their willingness to pay for operation (Table 2). Likewise, the main reasons identified for less cataract surgeries among Australian patients were lack of family support, resource constraints, financial issues and lack of knowledge [23]. According to the results of another study carried out among outreach cataract patients of Ethiopia, retired people were found more non-willingness to pay than those of working and with adequate knowledge of resultant surgical benefits and hence the conclusion was to devise a cost recovery model to facilitate the needy patients [24]. Another cross-sectional survey screened cases of Nepal revealed that about 15.6% of the respondents considered cataract surgery as an inessential and needless procedure while 11.1% wanted to get operated free of cost [25]. In our study, non-agricultural people were more willing to pay ($P = 0.02$) as evident from Table 1. Likewise, a study among screened cataract cases of one of the districts of China indicated that their rural community was less willing and hence recommendation was to institute some mechanism for ensuring cataract surgery of general population belonging to rural areas in patient-friendly manner [26]. One of the Sustainable Development Goals (SDGs) to be achieved by all nations by 2030 is attainment of optimum health and well-being (SDG-3). A scoping review by Zhang JH et al illustrated the ultimate benefit of improving eye health toward accomplishing multiple Sustainable Development Goals like SDG 1, 2, 4, 5, 8, 10, 11[27]. Cataract surgery is one of the methods to improve the visual health of the elderly community and in this era of global inflation, strategizing this surgery to make it cost-effective would definitely enable us to increase its propensity by making it affordable and hence will aid to attain SDGs within specified time frame.

Conclusion & Recommendations

Most of the cataract patients belonged to rural areas and were familiar with cataract surgery. About one third of them were non-willing to pay for cataract surgery due to financial hardship and uncertainty about efficacy of surgery. Planning this study on large sample size and enrolling the cases from multiple healthcare facilities will enable us to get a holistic view of the scenario.

Conflicts Of Interest: The authors declared no conflict of interest.

Source Of Funding: The author(s) received no financial support for the research, authorship and or publication of this article.

References

1. Thompson J, Lakhani N. Cataracts. Prim Care 2015; 42(3):409–423.
2. Steinmetz JD, Bourne RRA, Briant PS; Blindness GBD(2021). Vision Impairment C, Vision Loss Expert Group of the Global Burden of Disease S. Causes of blindness and vision impairment in 2020 and trends over 30 years, and prevalence of avoidable blindness in relation to VISION 2020: The Right to Sight: an analysis for the global burden of disease study. Lancet Glob Health. 2021;9(2): e144–e160.
3. Kentayiso TW, Alto AA, Abebaw Z, Misker D, Boynito WG (2023). Cataract prevalence and its associated factors among adult people aged 40 years and above in South Ari District, Southern Ethiopia. Advances in Public Health 2023 Mar; 1-9.
4. Pakistan Fact Sheet. September 2023.
5. Talpur KI, Gillani SM. Inclusive eye health – A milestone towards achieving universal health coverage in Pakistan. JCPSP 2023; 33(08): 833-835.
6. Hassan B, Ahmed R, Li B, Noor A, Hassan ZU (2019). A comprehensive study capturing vision loss burden in Pakistan (1990-2025): Findings from the Global Burden of Disease (GBD) 2017 study. PLoS One 2019; 14(5): e0216492.
7. Park SJ, Ahn S, Woo SJ, Park KH (2015). Extent of Exacerbation of Chronic Health Conditions by Visual Impairment in Terms of Health-Related Quality of Life. JAMA Ophthalmol. 2015;133(11):1267–1275.
8. Bizuneh ZY, Gessesse GW, Anbesse DH (2021). Barriers to Cataract Surgery Utilization Among Cataract Patients

Attending Surgical Outreach Sites in Ethiopia: A Dual Center Study. Clin Optom (Auckl) 2021 Sep 4; 13: 263-269.

9. Herrod S, Sherief SJ, Ahmed A, Mutati GC, Welling J, Wiafe B, et al (2024). Ophthalmologists' perspective on barriers to cataract surgery and surgical productivity in Ethiopia, Ghana, and Zambia: A descriptive, mixed-method survey. Ophthalmic Epidemiology 2024; 31(5): 409-419.
10. Ahmad K, Zwi AB, Tarantola DJM, Chaudhry TA (2015). Self-perceived barriers to eye care in a hard-to-reach population: The Karachi marine fishing communities' eye and general health survey. Invest Ophthalmol Vis Sci 2015; 56(2): 1023-1032.
11. Mason K (2024). Investigating sex-based differences in cataract surgery. Department of Ophthalmology, School of Medicine. 7th March 2024.
12. Fang R, Yu YF, Li EJ, Lv NX, Liu ZC, Zhou HG, et al (2022). Global, regional, national burden and gender disparity of cataract: findings from the global burden of disease study 2019. BMC Public Health 2022; 22: 2068.
13. Khairallah M, Kahloun R, Bourne R, Limburg H, Flaxman SR, Jonas JB, et al (2015). Vision Loss Expert Group of the Global Burden of Disease Study. Number of people blind or visually impaired by cataract worldwide and in world regions, 1990 to 2010. Invest Ophthalmol Vis Sci 2015; 56(11): 6762-6769.
14. Geiger MD, Lynch AM, Palestine AG, Grove NC, Christopher KL, Davidson RS, et al (2024). Are there sex-based disparities in cataract surgery? Int J Ophthalmol. 2024 Jan 18;17(1):137-143.
15. Shandiz JH, Derakhshan A, Daneshyar A, Azimi A, Moghaddam HO, Yekta AA, et al (2011). Effect of cataract type and severity on visual acuity and contrast sensitivity. J Ophthalmic Vis Res. 2011 Jan;6(1):26-31.
16. Vatti T, Chong DD, Maatouk CM, Das N, Gendi S, Schachat AP, et al (2024). Visual acuity changes in the preoperative period in patients undergoing cataract surgery. Canadian J Opthalmol 2024 Oct; 59(5): 300-306.
17. Al-Khafaji ZNH, Al Salam MSN (2023). Visual acuity threshold for cataract surgery at a tertiary eye center in Iraq. Pak J Ophthalmology 2023; 39(4): 319-322.
18. Rochtchina E, Mitchell P, Coroneo M, Wang JJ, Cumming RG (2001). Lower nasal distribution of cortical cataract: The Blue Mountains Eye Study. Clin Experiment Ophthalmol 2001;29(3): 111–115.
19. Vingopoulos F, Kasetty M, Garg I, Silverman RF, Katz R, Vasan RA, et al (2022). Active learning to characterize the full contrast sensitivity function in cataracts. Clinical Ophthalmology 2022 Sep; 16: 3109-3118.
20. Wang M, Zuo Y, Lin X, Ling Y, Lin X, Li M, et al (2025). Willingness to pay for cataract surgery provided by a senior surgeon in urban Southern China. PLoS ONE. 2015;10(11): e0142858.
21. Rahmanzadeh F, Alinia C, Fathi B, Yusefzadeh H (2024). Willingness to pay for cataract surgery and its associated factors in selected medical centers in Urmia, Iran. Cost Eff Resour Alloc 2024; **22**: 60.
22. Din Y, Chen X, Guan H, Du K, Zhang Y, Shi Y (2023). To investigate the individual and household-level factors influencing the willingness to pay for cataract surgery among patients aged 50 years and older in rural China: A cross-sectional study. BMJ Open 2023; 13: e069985.
23. Zhang M, Wu X, Li L, Huang Y, Wang G, Lam J, et al (2011). Understanding barriers to cataract surgery among older persons in rural China through focus groups. Ophthalmic Epidemiology 2011 Aug; 18(4): 179–186.
24. Seid M, Minyihun A, Tilahun G, Atnafu A, Amare G (2021). Willingness to pay for cataract surgery and associated factors among cataract patients in Outreach Site, North West Ethiopia. PLoS One 2021 Mar 24; 16(3): e0248618.
25. Shrestha MK, Thakur J, Gurung CK, Joshi AB, Pokhrel S, Ruit S (2004). Willingness to pay for cataract surgery in Kathmandu valley. Br J Ophthalmol. 2004 Mar; 88(3): 319-320.
26. Zhang XJ, Li EY, Leung CKS, Musch DC, Zheng CR, He MG, et al (2021). Willingness to pay for cataract surgery in baiyin district, Northwestern China. Ophthalmic Epidemiology 2021; 28(3): 205-212.
27. Zhang JH, Ramke J, Jan C, Bascaran C, Mwangi N, Furtado JM, et al (2022). Advancing the Sustainable Development Goals through improving eye health: A scoping review. The Lancet Planetary Health 2022 Mar; 6(3): e270-e280.