MBA DISSERTATION DEFENSE • HEALTHCARE ANALYTICS

Brand Perception and Factors Influencing Purchase Decisions of Surgical Equipment Used by Ophthalmologists in South Delhi

A Healthcare Analytics Perspective on Ophthalmic Surgical Equipment Procurement

SUBMITTED BY
Stuti Kumar

PROGRAMME
MBA (Healthcare Analytics)

GUIDE
Dr. Ritu Vashistha

ORGANIZATION
AdametNext

Dissertation submitted in partial fulfilment of the requirements for the award of Master of Business Administration (Healthcare Analytics) • 2026

Introduction

- Ophthalmology relies on precision surgical equipment — operating microscopes, phacoemulsification machines, YAG and Green lasers — to treat cataract, glaucoma and retinal disease.
- India's ageing population is driving demand: MoSPI projects 92.9 million elderly men and 100.9 million elderly women by 2031.
- Government estimates (2022) cite a backlog of 49 lakh cataract surgeries and 53.63 lakh severe-visual-impairment surgeries still required nationally.
- As institutions invest heavily in this equipment, ophthalmologists' perception of vendor brands becomes a decisive factor in clinical and financial outcomes.
- Understanding what shapes this perception helps vendors design better products, pricing, and service models.

WHY THIS MATTERS

Operating Microscope
Core OT visualization tool

Phacoemulsification
Standard cataract procedure

YAG Laser
OPD capsulotomy procedure

Green Laser
Retina & glaucoma treatment

CHAPTER 1

Problem Statement

- The global ophthalmic devices market is projected to reach US$42.60bn by 2030 (CAGR 5.42%, 2026–29); India alone is set to grow from US$605.56M (2026) to US$796.93M (2029).
- Despite this growth, multiple vendors compete on overlapping claims of quality, technology, and service — leaving ophthalmologists to navigate brand choice with limited structured guidance.
- Existing literature (Tehran, Yemen, South Africa, UK) studies procurement broadly, but offers little region-specific insight into how Indian ophthalmologists — especially in South Delhi — weigh brand image against cost, service and clinical performance.
- Vendors lack clarity on which levers (price, after-sales, credit terms, brand image) actually drive selection, retention or switching across different facility types.

MARKET OPPORTUNITY

US$42.60bn

Global ophthalmic devices market by 2030

5.42%

Global CAGR, 2026–2029

US$796.93M

India market size by 2029 (from $605.56M in 2026)

CHAPTER 2

Research Objectives

Aim

To explore the nuanced relationship between brand perception and purchasing behaviour of ophthalmologists in South Delhi for surgical equipment, and the key drivers shaping their decisions.

01

Assess Awareness & Perception

Evaluate ophthalmologists' awareness and perception of surgical equipment brands.

02

Identify Influencing Factors

Identify the factors influencing brand selection, retention, and resultant purchase decisions.

03

Assess Satisfaction & Unmet Needs

Assess current satisfaction levels with vendors and identify unmet needs in the market.

CHAPTER 1

Scope and Significance of the Study

SCOPE

- Ophthalmologist surgeons practicing across South Delhi.
- Covers standalone centres, eye-care specialty chains, multi-specialty hospital chains and NGOs.
- Equipment scope: Operating Microscope, Phacoemulsification Machine, Green Laser, YAG Laser.
- Period: April 2026 – June 2026.

Significance is rooted in real procurement behaviour reported directly by practising surgeons — not vendor-supplied assumptions.

WHO BENEFITS

Manufacturers & Vendors

Tailor products, pricing and marketing strategy to documented purchase drivers.

Healthcare Institutions

Benchmark procurement strategy against facility-type-specific priorities.

Ophthalmologists

Make better-informed, financially sound equipment decisions.

Academia & Policy

Adds India-specific, facility-segmented evidence to a largely global literature base.

CHAPTER 3

Review of Literature

Author (Year)	Focus Area	Key Finding
Cross & Hoare (2002)	Equipment planning aligned to VISION 2020	Inventory management and infrastructure compatibility are critical to durable equipment selection.
Tourani et al. (2014)	AHP model, Tehran hospitals	Quality ranks as the top procurement criterion, followed by after-sales service, brand reputation, then price.
Dabasia et al. (2014)	Diagnostic equipment & IT, UK optometry	Fundus camera used by 74% of practices; OCT adoption growing but acquisition cost remains a key barrier.
Fazlzadeh et al. (2011)	After-sales service quality	High-quality after-sales service strongly correlates with customer satisfaction and repurchase intent.
Mustofa et al. (2019)	Brand image, price & purchase decisions	Price has a significant positive influence on purchase decisions; brand image alone shows limited direct effect.

Across all studies, quality, after-sales service and strategic planning consistently emerge as decisive — but India-specific, facility-segmented evidence remains scarce.

CHAPTER 3

Conceptual Framework

- Patient Vision Outcomes
- Product Quality
- Low Cost / Affordability
- Margins for the Clinic
- Turnaround Time (TAT)
- Credit Days Provided
- After-Sales Service
- Bundling with Equipment
- Sales Personnel Quality
- Brand Image & Familiarity

PURCHASE DECISION

- Brand Selection
- Vendor Retention
- Promotion / Switching

CHAPTER 4

Research Methodology

Study Design

Descriptive, questionnaire-based cross-sectional study

Sampling Technique

Judgmental (non-probability) sampling

Sample Size

50 surveyed → 43 valid responses (86% response rate)

Study Tool

Structured, close-ended questionnaire — 35 questions across 4 sections

Data Collection

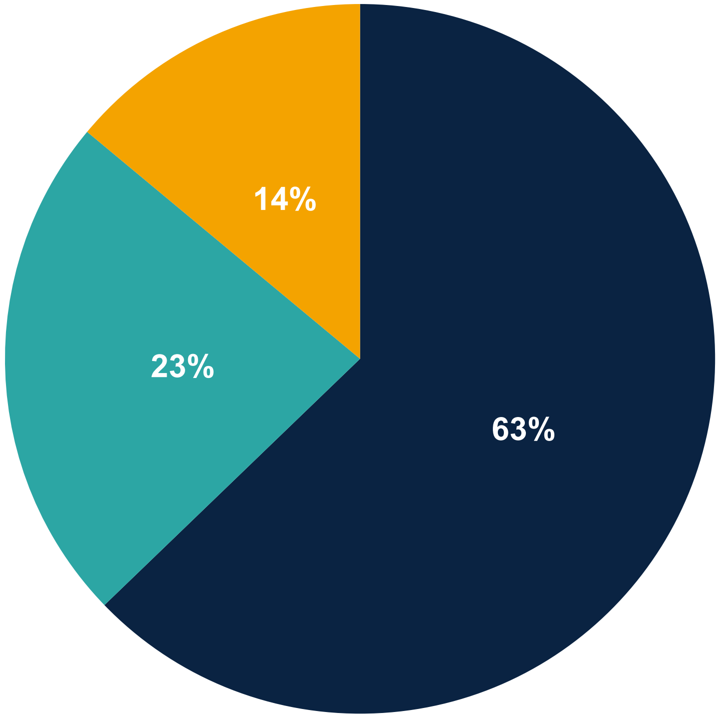
Field visits to clinics & hospitals across South Delhi

Statistical Tool

SPSS v28 — descriptive statistics (frequency, %, mean, SD)

CHAPTER 5

Respondent Profile



■ Standalone Centres (62.8%) ■ Eye Care Specialty Chains (23.3%) ■ Multi-Specialty Hospital Chains (14.0%)

43
Valid respondents (of 50 surveyed)

100%
Are practicing Ophthalmologist Surgeons

86%
Survey response rate

Apr–Jun '26
Data collection window

62.8% of respondents practice in standalone centres — the dominant, and most cost-sensitive, segment in this market.

Awareness and Usage of Surgical Equipment Brands

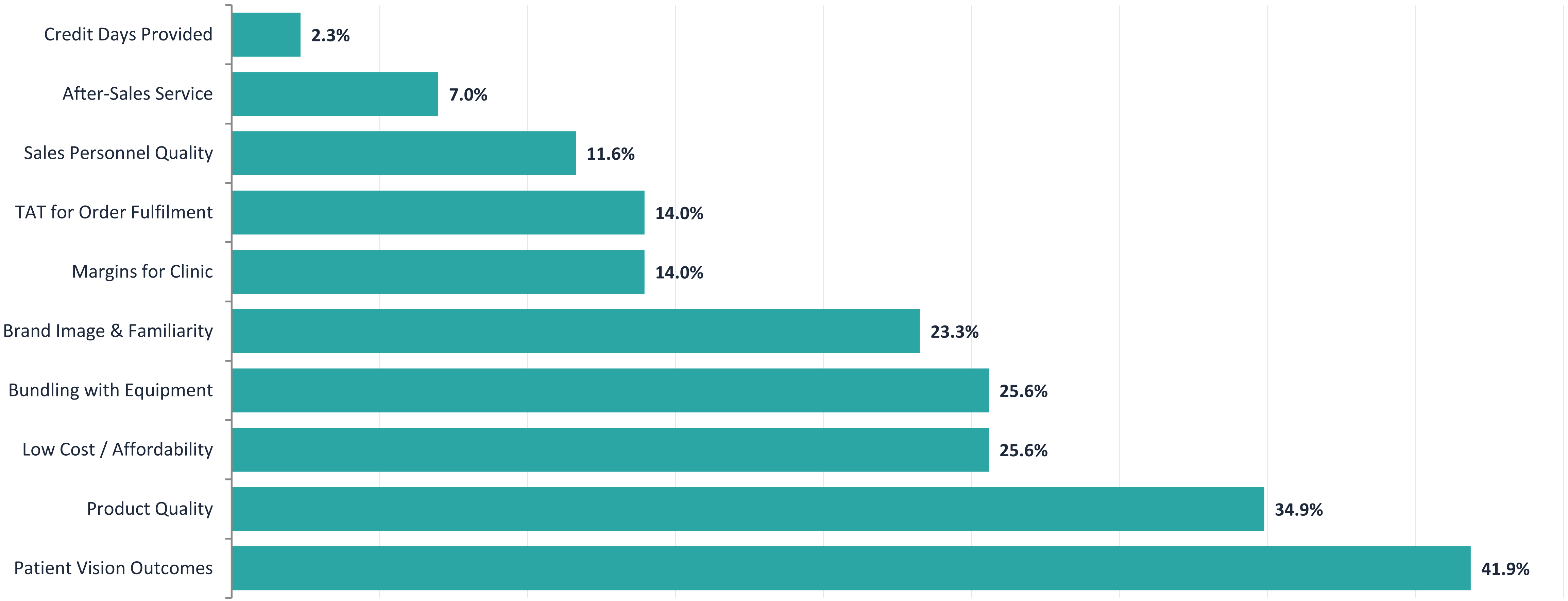
LEADING BRAND BY CURRENT USAGE (n = 43)

Microscope	Phaco Machine	Green Laser	YAG Laser
Zeiss	**Alcon**	**Zeiss / Nidek**	**Appasamy**
79.1%	**83.7%**	**34.9%**	**39.5%**

- Considered-vs-used gap signals openness to switch: Bausch & Lomb is most “considered” for microscopes (37.2%) and phaco machines (34.9%), yet Zeiss and Alcon hold actual usage.
- Appasamy leads YAG laser consideration (48.8%) and usage (39.5%) — its strongest equipment category.
- Green laser share is the most fragmented category, with Zeiss and Nidek tied at 34.9% each.

Factors Influencing Purchase Decisions

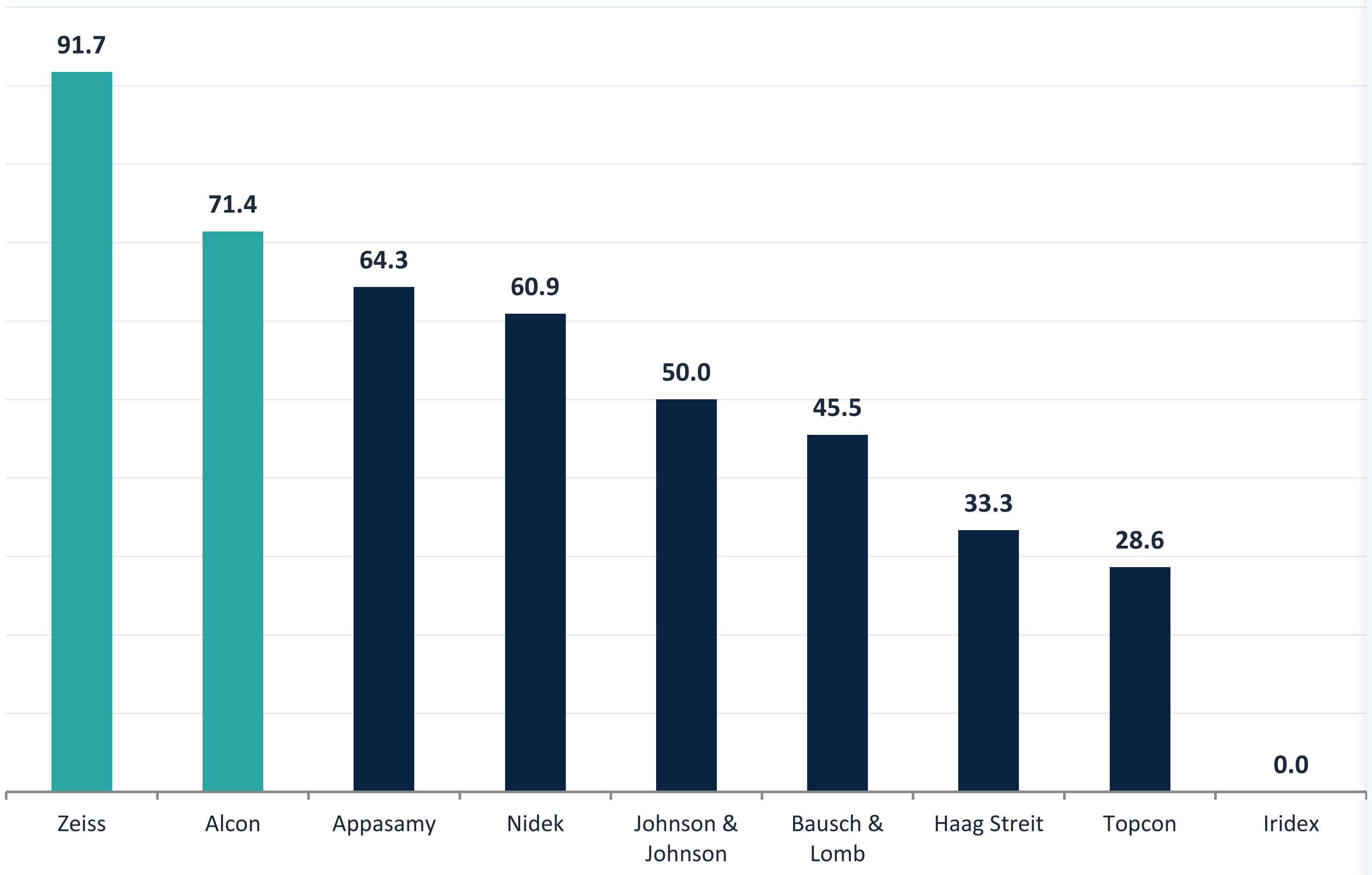
% OF RESPONDENTS RATING CRITERION AS TOP PRIORITY (RANK 9–10 OF 10)



CHAPTER 5

Influence of Brand Reputation

VENDOR SATISFACTION SCORE — % OF USERS SATISFIED (n VARIES BY VENDOR)

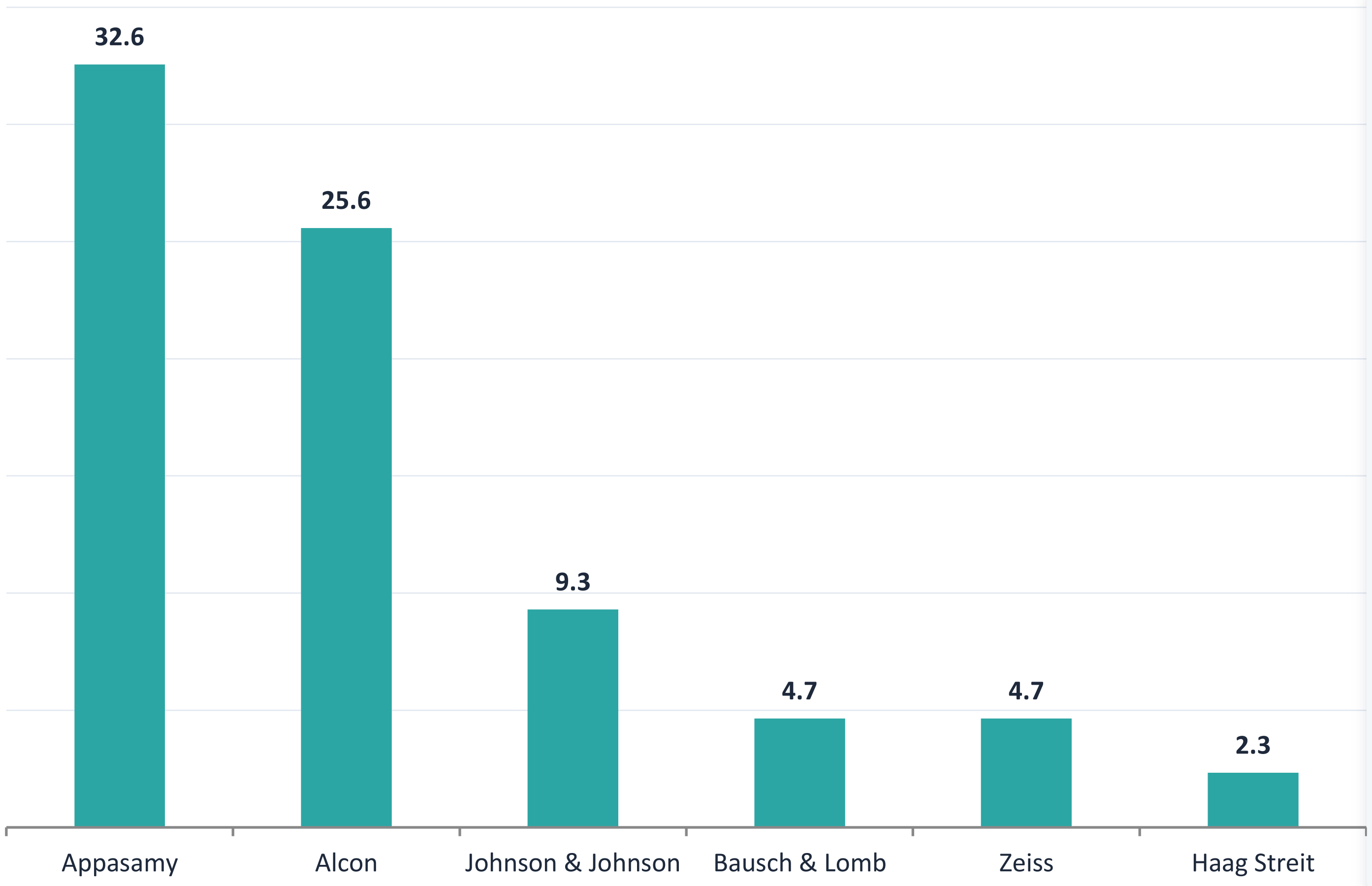


READING THE BRAND DATA

- Zeiss (91.7%) and Alcon (71.4%) are the most highly recommended and most satisfying vendors — strong brand image is their key promotion driver.
- Appasamy's poor brand image is its single largest detractor, cited by 74.4% of respondents — despite leading YAG laser usage.
- Iridex records 0% satisfaction among current users, the weakest brand-reputation position in the study.

Role of Product Quality and Performance

“HIGH PRODUCT QUALITY” CITED AS KEY DRIVER FOR VENDOR SELECTION

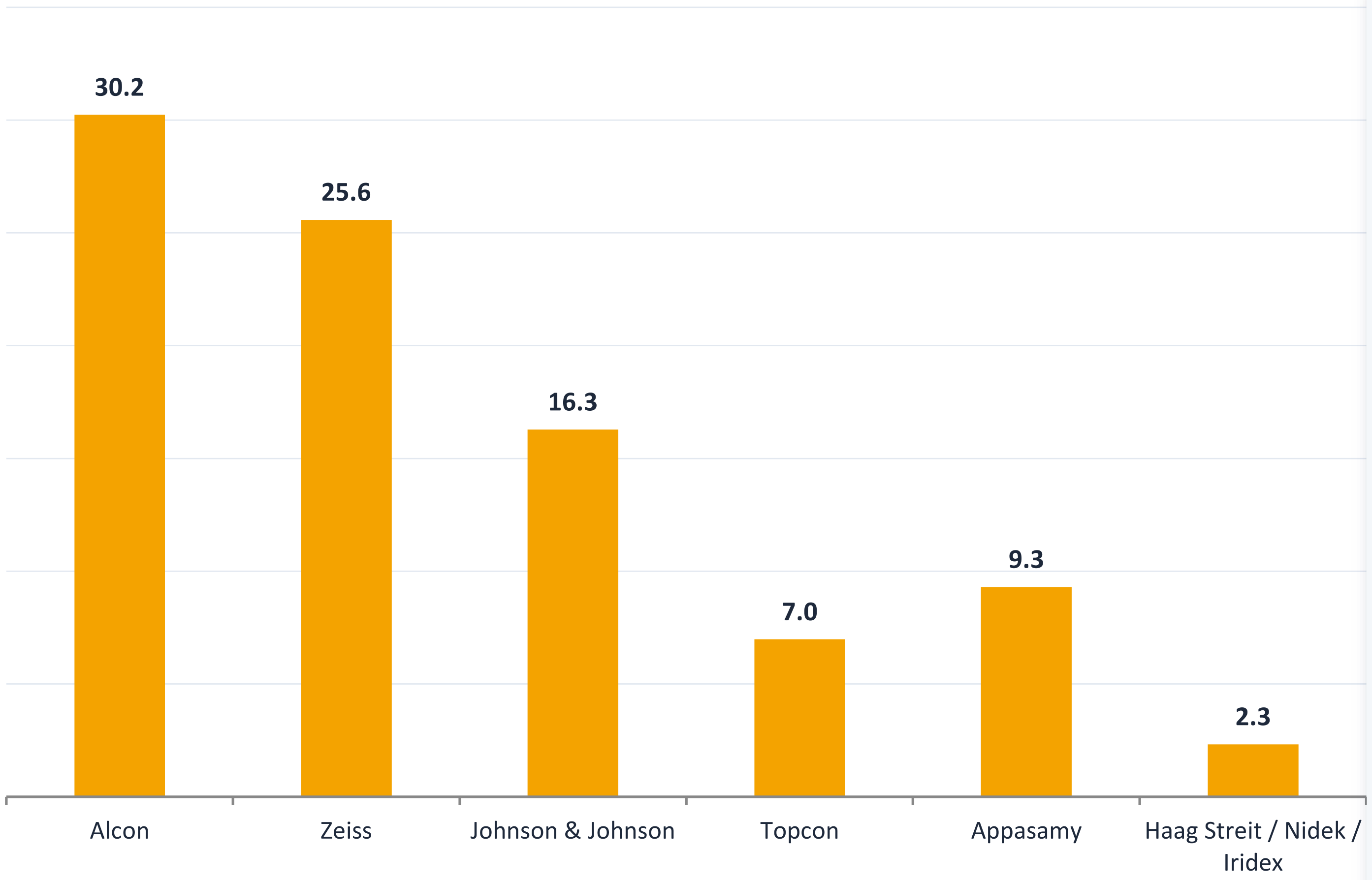


WHAT “QUALITY” MEANS HERE

- Defined in the questionnaire as accuracy of power (dioptre), raw-material quality, and ease of use.
- Product Quality is the #2 overall purchase criterion (34.9% top-priority rate), just behind patient vision outcomes.
- Appasamy and Alcon are most credited for quality among selection drivers — yet Alcon is still flagged for “low product quality” by 16.3% as a detractor, showing perception is not fully uniform.
- Quality concerns appear as secondary detractors even for category leaders (e.g., Nidek 7.0%, Zeiss 4.7%) — signalling no brand is immune to scrutiny.

Impact of Pricing

"HIGH COST / UNAFFORDABLE FOR PATIENTS" AS A VENDOR DETRACTOR



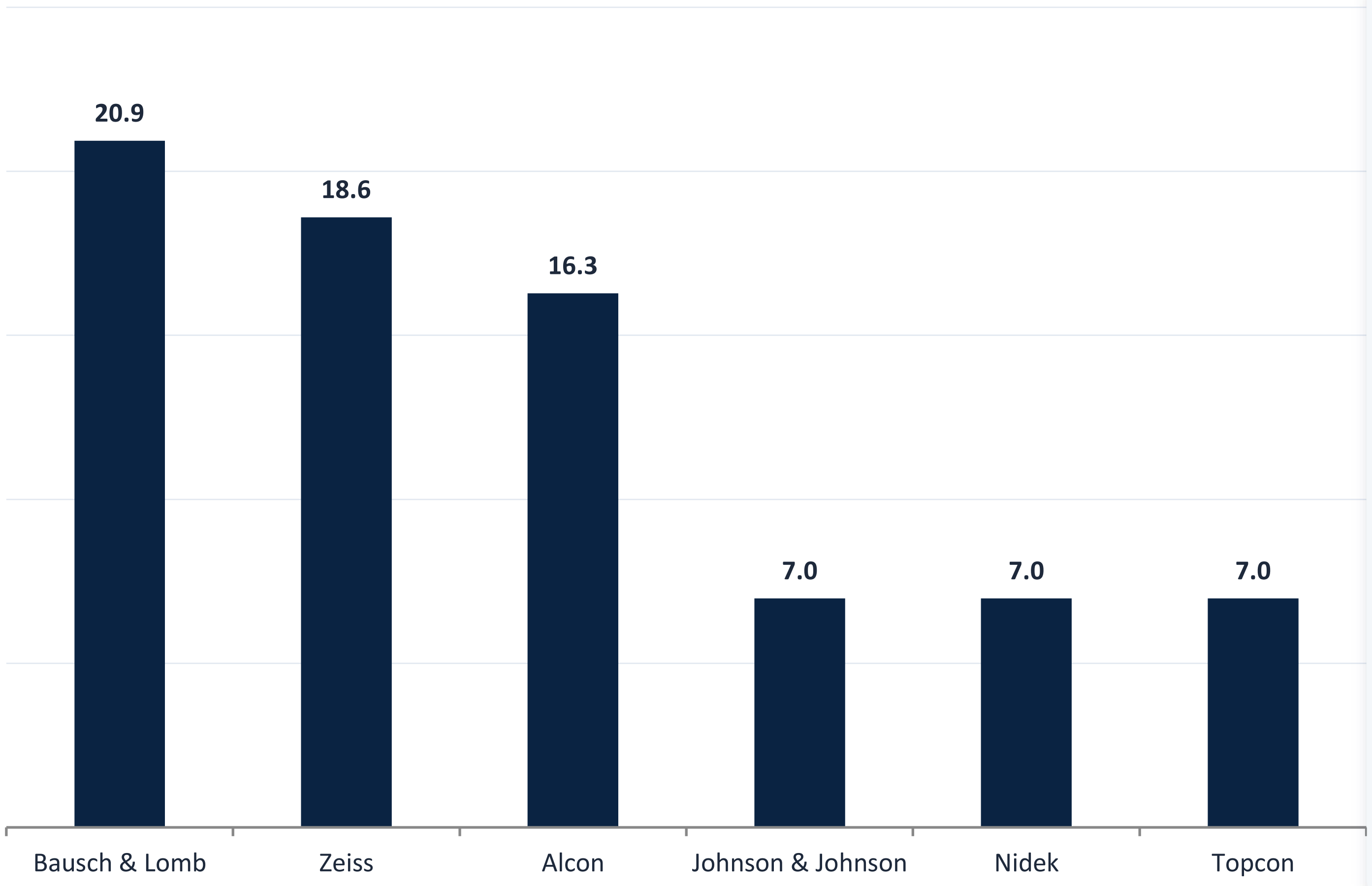
FACILITY-TYPE DIVIDE

- Cost/affordability is a primary purchasing criterion for 25.6% of all respondents (rank 9–10).
- Standalone centres (62.8% of the sample) prioritize cost-effectiveness, credit terms and bundling discounts.
- Eye-care specialty chains and multi-specialty hospitals instead emphasize advanced technology, patient comfort and service packages over price.
- Alcon and Zeiss — both clinical leaders in their categories — carry the highest cost-related detraction, at 30.2% and 25.6%.

CHAPTER 5

Importance of After-Sales Service & Technical Support

“POOR AFTER-SALES SERVICE” CITED AS A VENDOR CONCERN



SERVICE DRIVES SWITCHING

- Bausch & Lomb's #1 detractor is poor after-sales service (20.9%), its biggest brand weakness.
- 32.8% of respondents cite “lower machine downtime / minimal maintenance effort” as a top trigger to switch equipment — the joint second-highest trigger overall.
- Indian players (e.g., Appasamy) are perceived as stronger on after-sales support and credit terms versus several international entrants.
- Even Zeiss, the top-satisfaction brand, shows after-sales as its leading secondary concern (18.6%).

CHAPTER 5

Statistical Analysis Summary

SPSS v28 was used to compute descriptive statistics (frequencies, percentages, means, standard deviations) across all 35 questionnaire items. As a descriptive cross-sectional design, the study reports distributional patterns rather than formal inferential hypothesis tests.

95.4%
Expect equipment investment to grow over the next 3 years

55.8%
Plan to maintain similar investment levels next 3 years

91.7%
Satisfaction score for Zeiss — the highest-rated vendor

42.2%
Cite ease of usage as the top trigger for switching equipment

KEY DESCRIPTIVE INSIGHTS

- High-cost equipment (microscope, phaco machine) is replaced every 5–10 years for ~65–67% of respondents; lasers (Green/YAG) turn over faster, every 2–5 years for ~56–58%.
- Green Laser purchases (72.1%) led all categories in the last 3 years, ahead of Phaco Machine (53.5%) and Microscope (51.2%).
- Investment growth is overwhelmingly demand-led: 48.8% cite clinic expansion and 34.2% cite equipment replacement as the primary growth driver.

CHAPTER 5

Discussion of Findings

Prior Study	This Study's Alignment / Contrast
Smith et al. (2020)	Confirms cost, technology and vendor reliability as core decision factors among ophthalmologists.
Tourani et al. (2014); Abam et al. (2019)	Aligns on quality and after-sales service as vital procurement criteria for medical equipment.
Fazlzadeh et al. (2011)	Confirms after-sales quality drives loyalty — mirrored here in switching-trigger and detractor data.
Dabasia et al. (2014), UK optometry	Contrast: South Delhi shows a knowledge gap on the latest technologies versus higher UK tech adoption.
Al-Akily et al. (2014), Yemen	Contrast: urban South Delhi shows more consistent equipment access than rural/disparate Yemeni settings.

Cost and service reliability are universal priorities; technology-adoption maturity is the clearest regional differentiator.

CHAPTER 6

Key Findings

- Patient vision outcomes (41.9%) and product quality (34.9%) are the two dominant purchase criteria, ahead of cost and brand image.
- Standalone centres (62.8% of respondents) form the dominant — and most cost- and credit-sensitive — segment of the market.
- Zeiss leads microscope usage (79.1%) and Alcon leads phaco machine usage (83.7%), each with near-monopolistic category share.
- 95.4% of ophthalmologists expect equipment investment to grow over the next three years.
- Appasamy faces a sharp brand-image gap — cited as a detractor by 74.4% — despite category leadership in YAG lasers.
- After-sales service quality is a decisive differentiator: it is Bausch & Lomb's top detractor (20.9%) and a secondary concern even for top-rated Zeiss.
- Ease of usage is the single biggest trigger for equipment switching, cited by 42.2% of respondents.
- Zeiss (91.7%) and Alcon (71.4%) record the highest vendor satisfaction; Iridex records 0%.

CHAPTER 6

Recommendations

For Manufacturers

- Zeiss and Haag Streit should upgrade after-sales infrastructure — more service training, channels, faster response times.
- All brands should sustain R&D investment to keep pace with evolving clinical and ease-of-use expectations.

For Marketers / Brand Teams

- Appasamy should invest in marketing and PR to close its brand-image gap and convert YAG-laser strength into broader trust.
- Alcon should explore tiered pricing, bundled packages or financing to ease its high-cost detraction.

For Healthcare Organizations / Vendors

- Nidek and similar vendors should offer more flexible credit terms — extended payment plans or leasing — to widen affordability.
- Vendors should strengthen engagement and education initiatives with standalone centres, the largest market segment.

CHAPTER 6

Managerial Implications

Segment Go-To-Market by Facility Type

Standalone centres respond to cost, credit and bundling; chains and hospitals respond to technology, comfort and service — a one-size pricing or sales pitch underperforms.

Build Data-Driven Account Management

Satisfaction and detractor scores by brand (Slides 12–15) offer a ready-made framework for prioritizing account-level service interventions.

Close the Technology-Awareness Gap

Professional workshops, awareness campaigns and key-opinion-leader engagement can accelerate adoption of newer diagnostic and surgical technology.

Treat After-Sales as a Retention Lever

Since ease of use and low downtime are top switching triggers, service-level investment is as commercially important as product innovation.

CHAPTER 7

Limitations and Future Research

LIMITATIONS

- Sample size of 43 ophthalmologists may not fully capture the diversity of the wider market.
- Findings are geographically bound to South Delhi; preferences may differ across regions.
- Reliance on self-reported data introduces potential for response bias or inaccuracies versus objective equipment/vendor performance.

FUTURE RESEARCH

- Expand sample size and cover multiple regions/cities for greater generalizability.
- Apply inferential statistics (e.g., hypothesis testing, regression) to test relationships, not just describe them.
- Track technology adoption (e.g., OCT, femtosecond laser) longitudinally as awareness initiatives roll out.
- Extend the framework to other high-cost surgical specialties beyond ophthalmology.

Future prospects: ongoing innovation in lasers, imaging and diagnostics, alongside closer manufacturer–provider partnerships, will likely reshape purchase criteria over the next investment cycle.

CHAPTER 6 • CONCLUSION

Conclusion

- Product quality, cost-effectiveness and after-sales service emerge as the primary, consistent drivers of surgical equipment purchase decisions among South Delhi ophthalmologists.
- Facility type meaningfully shapes priorities — standalone centres lean on cost, credit and bundling; chains and hospitals lean on technology, comfort and service.
- Brand-specific gaps are addressable: Appasamy's brand image, Alcon's pricing, and Bausch & Lomb's after-sales each represent clear, data-backed opportunities for vendors.
- Targeted education, stronger vendor engagement, and data-driven procurement are recommended to bridge the regional technology-awareness gap and sustain the strongly positive investment outlook (95.4% expect growth).

Thank You

Questions & Discussion are welcome

Stuti Kumar | MBA (Healthcare Analytics) | Guide: Dr. Ritu Vashistha | AdametNext