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AWARENESS ABOUT REFRACTIVE CORRECTIVE SURGERIES AMONG STUDENTS (18-25) AT ISRA UNIVERSITY, ISLAMABAD: A CROSS-SECTIONAL STUDY

Original Research

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Acknowledgement: The authors acknowledge the support and participation of all students who contributed to this study.

Conflict of Interest: None

Grant Support & Financial Support: None

ABSTRACT

Background: Refractive errors remain one of the most common causes of visual impairment worldwide, significantly affecting quality of life when left uncorrected. Spectacles and contact lenses are conventional solutions, but surgical interventions such as LASIK and PRK have gained widespread acceptance due to their effectiveness in reducing dependence on optical aids. Despite the growing popularity of these procedures, awareness about their availability, risks, and long-term outcomes remains inconsistent, particularly among young adults in developing countries.

Objective: The objective of this study was to assess the level of awareness, sources of knowledge, and attitudes regarding refractive corrective surgeries among young adults at Isra University, Islamabad.

Methods: This quantitative, cross-sectional study was conducted among students of Isra University from 16 April to 30 May 2025. A purposive sampling strategy was employed, and data were collected from 265 participants using a pretested self-designed questionnaire. Variables included demographic details, knowledge of surgical types, awareness of risks and benefits, and preferred correction methods. Data entry and statistical analysis were performed using SPSS version 21.0, with descriptive statistics used to summarize findings.

Results: A total of 265 students (mean age 21.6 years) participated, comprising 136 males and 129 females. The majority used spectacles for refractive error correction. Awareness of surgical procedures was reported by 61.1% of participants, while 38.9% were unaware. Knowledge of specific procedures showed that 26.4% knew about LASIK, 14.0% about PRK, and 26.4% about both, whereas 33.2% had no knowledge. Social media, family, and physicians were cited as sources of information by 72.5% of participants, while 27.6% reported no source of knowledge. Regarding attitudes, 34.3% considered refractive surgeries the best correction method, while 37.4% favored spectacles and 28.3% contact lenses.

Conclusion: The findings suggest that young adults at Isra University demonstrated a moderate to good level of awareness about refractive corrective surgeries, with social media serving as the predominant source of knowledge. Although many participants recognized the benefits and risks of these procedures, reliance on non-professional sources highlights the need for continuous education and professional guidance to improve informed decision-making.

Keywords: Awareness, Cross-sectional study, LASIK, PRK, Refractive error, Refractive corrective surgeries, Students.

INTRODUCTION

Refractive error is one of the most common ocular conditions worldwide and represents a leading cause of visual impairment in both adults and children when left uncorrected. It arises when the eye fails to properly focus light on the retina due to variations in its shape or length, resulting in blurred vision. The consequences of untreated refractive error extend beyond poor vision; they significantly affect quality of life. In children, it can hinder academic performance, in working-age adults it can reduce productivity and economic participation, and in older individuals it may contribute to social isolation (1). Among the types of refractive errors, myopia, or nearsightedness, occurs when distant objects appear blurred because light rays converge in front of the retina. Conversely, hyperopia, or farsightedness, is characterized by greater clarity of distant objects than near ones, though severity varies across individuals. Astigmatism, caused by irregular corneal or lens curvature, results in distorted or stretched images (2). Corrective options for refractive error include prescription glasses, contact lenses, and refractive surgical interventions (3). Over the last few decades, surgical correction has gained popularity, with laser-assisted in situ keratomileusis (LASIK) being the most common procedure. LASIK reshapes the cornea with laser technology, reducing dependence on glasses or lenses, though presbyopia remains uncorrectable through this method. Despite generally favorable outcomes, possible side effects such as glare, halos, double vision, and dry eyes warrant careful consideration (4,5). Photorefractive keratectomy (PRK) and small incision lenticular extraction (SMILE) provide alternative surgical options, with PRK involving removal of corneal surface cells and SMILE offering a minimally invasive approach to correcting myopia and astigmatism (6,7).

While the availability of surgical solutions has increased, awareness, acceptance, and perceptions regarding refractive surgery remain variable across different populations. Studies conducted in Saudi Arabia and India have revealed moderate to high levels of awareness about refractive surgery, but hesitancy persists due to fear of complications, high costs, and inadequate information (8–12). Family, friends, physicians, and increasingly social media have been identified as the primary sources of knowledge, highlighting the influence of social and professional networks on decision-making. Importantly, factors such as age, sex, education, and region appear to shape the degree of awareness and willingness to undergo surgery. Despite the benefits and widespread availability of refractive surgery, a gap remains between awareness and acceptance. Many individuals are informed about the existence of these procedures, yet reluctance to undergo them persists, often rooted in perceived risks or lack of reliable guidance. These findings underscore the need for health education strategies that provide clear, evidence-based information and address misconceptions, thereby empowering individuals to make informed choices about refractive error correction. The present study is designed to explore awareness, attitudes, and perceptions regarding refractive error correction methods, with a particular focus on surgical options. By examining the level of knowledge, preferred correction methods, and reasons for hesitancy, the study aims to generate insights that could guide patient education and improve acceptance of effective interventions. The objective is to determine the level of awareness, perceptions, and attitudes toward refractive error surgery, as well as the factors influencing acceptance or refusal, thereby addressing an important gap in eye health promotion and clinical decision-making.

METHODS

The present study was designed as a quantitative cross-sectional investigation conducted at Isra University, Islamabad campus, over a period of six months. The study population comprised young adults with refractive errors enrolled at the university. Participants were recruited through purposive sampling, and the final sample consisted of 265 individuals. The sample size was calculated using a standard sample size calculator, ensuring adequate statistical power for analysis. Data collection was carried out over a three-week period in May 2025. Eligibility criteria required participants to be young adults formally registered at Isra University, Islamabad campus, and to have a clinically confirmed refractive error. Students without refractive error, those with a history of ocular surgery, or individuals with systemic or neurological conditions that could affect vision were excluded. Age verification was ensured by checking participants' official identification cards, thereby maintaining accuracy in the inclusion process. Data were collected using a self-designed, structured questionnaire that was pretested for clarity and comprehensibility prior to administration. The instrument included items regarding demographic information, type of refractive error, and attitudes toward corrective options. The research team administered the questionnaire in person after explaining the objectives and procedures of the study. Written informed consent was obtained from each

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participant, and confidentiality was strictly maintained throughout the study. Approval for the research protocol was granted by the Ethical Committee of PIRS, Isra University. Ethical principles were observed at every stage of the study, including voluntary participation, the right to withdraw, and assurance of anonymity. The collected data were reviewed for completeness and consistency before analysis. Statistical analysis was conducted using the Statistical Package for the Social Sciences (SPSS), where descriptive statistics such as frequencies, percentages, means, and standard deviations were calculated. Where appropriate, inferential statistics were applied to examine associations between categorical variables.

RESULTS

The study included a total of 265 participants, comprising 136 males and 129 females. The minimum age of the participants was 18 years, while the maximum was 26 years, reflecting a young adult population. When exploring sources of information regarding refractive surgeries, 30.6% of participants reported social media as their main source, followed by 27.5% who admitted they did not know, 22.3% who relied on family and friends, and 19.6% who reported physicians or doctors. Overall awareness about the existence of surgical procedures for refractive error correction was reported by 61% of the respondents, while 39% stated they were unaware. In terms of awareness about types of refractive surgeries, 26.4% of participants were familiar with LASIK, 14% with PRK, and another 26.4% recognized both LASIK and PRK. However, 33.2% reported no knowledge of the types of refractive surgeries. Regarding awareness about potential side effects, 49% of the participants acknowledged that refractive surgeries may have adverse effects, whereas 51% were not aware. Similarly, when asked if vision weakness may recur after a laser procedure, 49% agreed while 51% disagreed. Participants' views about methods of refractive correction revealed that 54.7% preferred continuous use of glasses, 25.3% favored contact lenses, and 20% considered refractive surgeries. Additionally, 58% of the respondents believed that refractive surgery decreases or eliminates dependency on spectacles, while 42% did not agree.

Willingness to undergo refractive surgery was expressed by 44% of the participants, while 56% were reluctant. Consultation with healthcare professionals about refractive correction was reported by only 36% of the participants, with 64% stating they did not consult professionals. Regarding the adequacy of information provided by healthcare professionals, 54% of participants felt that sufficient information was shared about the advantages and disadvantages of surgery, whereas 46% disagreed. Interestingly, 57% believed that information from online sources was more accessible than from healthcare professionals, while 43% disagreed. When asked about the best method for refractive correction, 38% identified spectacles as the most suitable option, 34% preferred refractive surgery, and 28% chose contact lenses. Further subgroup analysis was conducted to explore gender-wise differences in awareness and willingness toward refractive surgery. Among male participants, 66.2% reported awareness of refractive surgery compared to 55.8% of females, suggesting that males were relatively more informed. However, willingness to undergo surgery was higher in males (47.8%) compared to females (39.5%), though in both groups, reluctance to undergo the procedure remained greater than acceptance. These findings highlight gender-based variations in awareness and attitudes, which may reflect differences in access to information, perception of risk, or sociocultural influences.

Table 1: Demographic Characteristics of Study Participants

Variable	Category/Value	Frequency/Range
Gender	Male	136
	Female	129
Age (years)	Minimum	18
	Maximum	26

Table 2: Source of Information Regarding Refractive Surgeries

Source of Information	Frequency (%)
Friends and family	22.3
Social media	30.6
Physician/doctor	19.6
I don't know	27.5

Table 3: Awareness of Refractive Surgery

Awareness Variable	Yes (%)	No (%)
Awareness of surgical procedures	61	39
Awareness of possible side effects	49	51
Belief that vision weakness may recur	49	51
Belief that surgery reduces dependence	58	42

Table 4: Awareness of Types of Refractive Surgeries

Type of Surgery Awareness	Frequency (%)
LASIK only	26.4
PRK only	14.0
Both LASIK & PRK	26.4
Don't know	33.2

Table 5: Participants' Attitudes Toward Refractive Correction Methods

Preferred Method of Correction	Frequency (%)
Continuous use of glasses	54.7
Contact lenses	25.3
Refractive surgeries	20.0

Table 6: Awareness of Refractive Surgery by Gender

Gender	Aware (Yes)	Aware (No)	Total
Male	90	46	136
Female	72	57	129

Table 7: Willingness to Undergo Refractive Surgery by Gender

Gender	Willing (Yes)	Willing (No)	Total
Male	65	71	136
Female	51	78	129

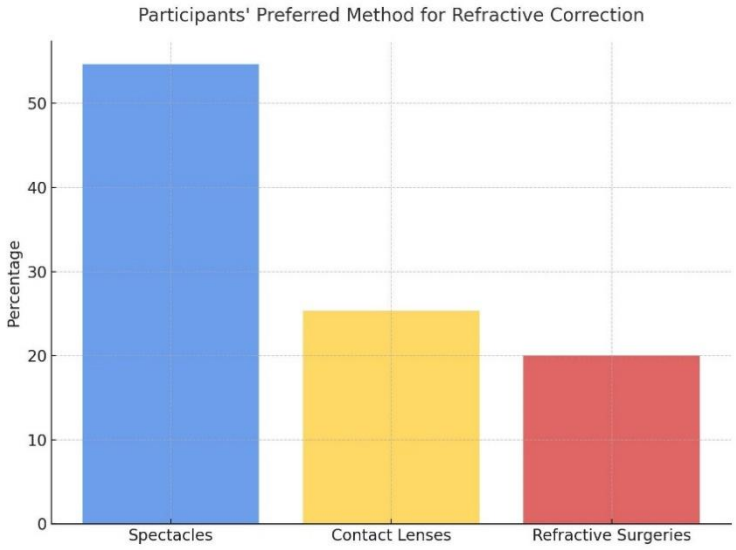

Figure 1 Participants Preferred Method for Refractive Correction

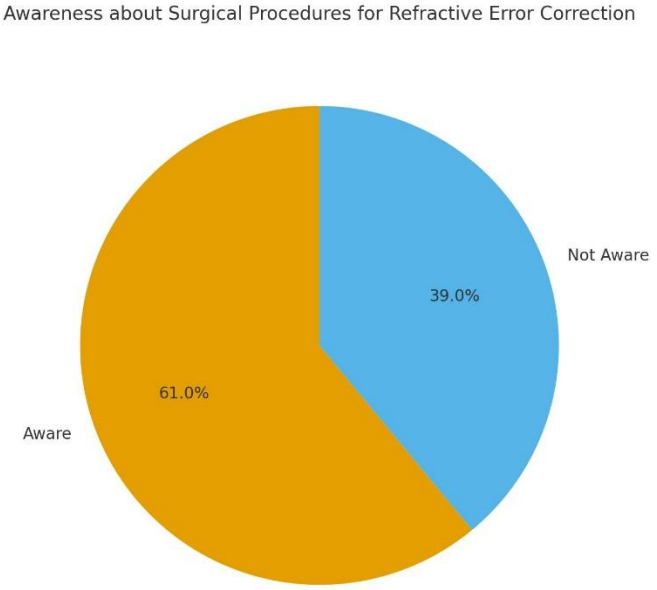

Figure 2 Awareness about Surgical Procedures for Refractive Error Correction

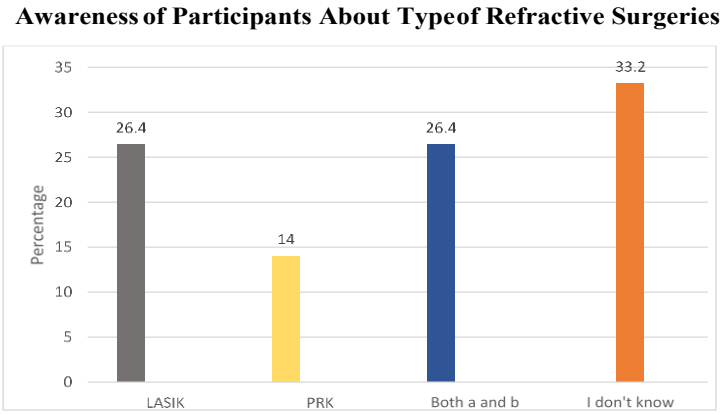

Figure 3 Awareness of Participants About Type of Refractive Surgeries

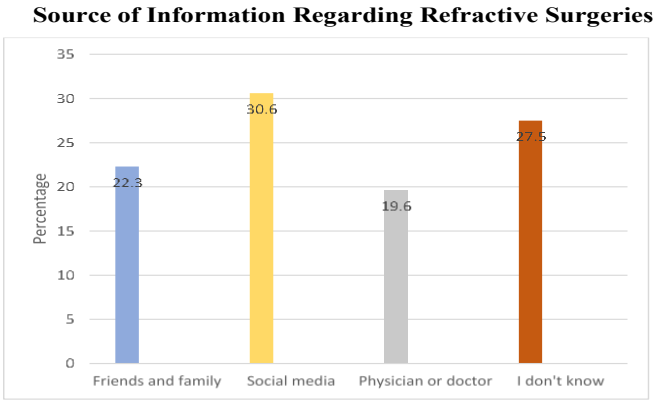

Figure 4 Source of Information Regarding Refractive Surgeries

DISCUSSION

The present study explored awareness, perceptions, and attitudes of young adults regarding refractive surgeries and alternative correction methods, generating insights that reflect both the growing influence of social information networks and the persistent gaps in medical consultation and patient education. A considerable proportion of participants were aware of refractive surgery procedures, with 61%

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reporting knowledge of their availability, yet a substantial minority remained unaware. This indicates that despite the increasing global popularity of surgical interventions such as LASIK, PRK, and SMILE, dissemination of accurate and accessible information continues to be uneven across populations. Social media emerged as the leading source of information in this study, surpassing physicians and healthcare professionals. This finding aligns with previous reports from similar settings where social media platforms have gained precedence as a dominant channel for health-related awareness, particularly among young adults, though at the expense of professional guidance (10,11). While social media may increase accessibility, it also raises concerns about the credibility of the shared information, as reliance on non-expert sources can perpetuate misconceptions about risks, outcomes, and eligibility. A noteworthy proportion of respondents demonstrated limited awareness of specific surgical modalities. Only about one-quarter of the participants correctly identified LASIK or PRK, and more than one-third reported no knowledge of available types of refractive surgeries. This echoes earlier findings from Saudi Arabia and India where awareness levels varied but were frequently superficial and not accompanied by sufficient understanding of procedural risks and benefits (13,14). Such findings highlight the need for structured health education programs to improve literacy regarding vision correction options.

Perceptions of side effects and long-term outcomes also revealed mixed understanding. Approximately half of the participants were aware that refractive surgeries may be associated with complications such as dry eyes, glare, or regression of vision, while the other half underestimated these risks. The literature consistently emphasizes that while refractive surgeries are generally safe and effective, adverse events do occur, and some can be persistent (15,16). The ambivalence in perceptions identified in this study demonstrates that while awareness campaigns may have succeeded in publicizing the availability of surgical options, risk communication has been inadequate. This raises clinical implications as patients with incomplete knowledge may harbor unrealistic expectations, which in turn could affect satisfaction and compliance with follow-up care. Attitudes toward refractive correction methods were similarly divided. Continuous use of spectacles remained the most preferred method, followed by contact lenses and surgery. The preference for spectacles is consistent with findings from other university-based populations, where affordability, availability, and perceived safety influence choice (17). Nevertheless, nearly one-third of participants endorsed refractive surgery as the best method of correction, reflecting a gradual shift in acceptance, especially among young adults. However, willingness to undergo surgery remained limited, with only 44% expressing readiness, while more than half resisted the idea. This reluctance can be attributed to cost, fear of complications, and the lack of direct consultation with professionals, as only 36% had ever discussed refractive surgery with healthcare providers. Similar barriers have been documented across both high- and middle-income countries, where despite good awareness, uptake remains limited due to cost, cultural beliefs, and fear of vision loss (18,19). Gender-based differences highlighted in subgroup analysis showed that males were relatively more aware and willing to undergo refractive surgery compared to females. This disparity may be explained by differences in access to digital health resources, healthcare-seeking behavior, and cultural influences. Prior research has reported similar findings where women expressed greater concerns about surgical risks and long-term complications, while men were more influenced by convenience and cosmetic motivations (20,21). Addressing these gender-specific concerns may therefore be essential for equitable dissemination of information and increasing acceptance of surgical correction.

The strengths of this study include its focus on a young adult population at a critical stage for making long-term vision correction decisions and its use of a structured questionnaire tailored to address awareness, attitudes, and perceptions. Furthermore, subgroup analysis enriched the interpretation by highlighting variations according to gender. However, limitations must also be acknowledged. The use of purposive sampling restricts generalizability beyond the study setting. The cross-sectional design captures perceptions at a single point in time, precluding causal interpretations. In addition, while the questionnaire provided valuable insights, its self-designed nature without detailed validation may have introduced measurement bias. The study also lacked detailed subgroup analysis by age and type of refractive error, and inferential statistical testing was not extended beyond basic descriptive comparisons, limiting the analytical depth. Future research should employ larger, multi-institutional samples with validated tools to confirm these findings and extend them across different age groups and socioeconomic strata. Interventional studies testing structured awareness campaigns, including both digital and physician-led approaches, could provide insights into effective strategies for improving informed decision-making. Cost-effectiveness analyses of refractive surgery in low- and middle-income countries would also be valuable, given that affordability remains a critical barrier to acceptance. In conclusion, this study demonstrates that awareness of refractive surgery among young adults is moderate, with social media emerging as the predominant source of knowledge, yet gaps remain in understanding specific surgical modalities, risks, and long-term outcomes. While spectacles continue to be the preferred correction method, nearly one-third of participants view refractive surgery as the best option, though willingness to undergo surgery is limited. Addressing misinformation, enhancing professional counseling, and developing targeted educational interventions may bridge the gap between awareness and acceptance, thereby facilitating informed choices in vision correction.

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CONCLUSION

The study concludes that young adults at Isra University Islamabad generally possess a reasonable level of awareness and understanding of refractive corrective surgeries, particularly procedures such as LASIK and PRK. Social media emerged as the predominant source of information, shaping perceptions and influencing knowledge about these interventions. Importantly, most participants were also cognizant of the potential side effects associated with such procedures, reflecting a balanced awareness of both benefits and risks. These findings highlight the significance of targeted educational strategies to ensure that information shared through popular platforms is accurate and comprehensive, thereby enabling individuals to make informed decisions regarding vision correction.

AUTHOR CONTRIBUTION

Author	Contribution
Saima Ghufran*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Laraib Iftikhar	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Nadia Nadeem	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Koshyar Ali	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Hafsa Shams	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Rustum Azeem	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published

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