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Long-Term Effects of Taking Refractive Surgery (LASIK) on Thai People

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ABSTRACT: Nowadays, the number of people who have a visual impairment tends to increase moderately because they spend much more time using smartphones for both work and personal use. The monitors of phones, tablets, and computers have blue light, which directly affects the eyes. Thus, many people need to wear glasses or contact lenses, but not everyone is appropriate to do so. If patients ignore it, their visual impairment might be worse. So, having refractive surgery is one of the popular solutions to grappling with this sight problem. Nevertheless, LASIK may also have negative consequences, such as dry eyes and itchy eyes. Therefore, understanding the risks and being aware of the effects of refractive surgery would greatly impact a person's choice for eye correction. Consequently, we conducted this survey research using questionnaires in order to determine the long-term effects and satisfaction of taking refractive surgery for Thai patients. Our results show that there are various side effects and different levels of side effects on each person. Therefore, this study will provide guidelines for making the decision to undergo refractive surgery or not.

KEYWORDS: LASIK, Visual impairment, Refractive surgery, Satisfaction

INTRODUCTION

A visual impairment is a common health problem that can occur in all generations. There are three basic types to this visual impairment: nearsightedness (myopia), farsightedness (hyperopia), and astigmatism. Furthermore, it is possible to have more complicated sight: short and astigmatic; long and astigmatic; short and long; short, long, and astigmatic. To cope with these visual problems, three popular vision corrections are currently being used, which include wearing glasses, wearing contact lenses, and taking refractive surgery, also known as Laser-Assisted In Situ Keratomileusis (LASIK). Among these eyesight correction techniques, refractive surgery is the only method to cure, while others just help the users to have a normal sight [1]. In past years, due to the increased use of electronics in work, study, and recreation, the number of people with poor vision has been reported to increase to at least 2.2 billion [2]. Consequently, this increases the popularity of LASIK as a procedure to correct the refractive error.

Refractive surgery is an optional eye correction performed to solve the refractive error of the eye and eliminate the dependency on glasses or contact lenses. This procedure involves changing the curvature of the cornea, the tissue at the front of the eye, with a special type of cutting laser. It is usually done to get rid of or reduce dependence on glasses and contact lenses. Patients who can be operated on need to have stable refraction (glass power) of the eye lens and a minimum age of 18–21 years [3]. A complete medical history along with a detailed eye examination is mandatory for all candidates, where special investigations like corneal topography (Pentacam, Orbscan) and anterior segment optical coherence tomography (ASOCT) are performed to evaluate the shape, thickness, and curvature of the cornea and other dimensions of the eye. After acquiring all the details, the eye surgeon (ophthalmologist) chooses one of the available options of refractive surgery that is best for the patient concerning all conditions, which are phototherapeutic refractive keratectomy (PRK), laser in situ keratomileusis (LASIK), and small incision lenticule extraction (SMILE) [3]. LASIK has been reported to improve eye vision in people with nearsightedness, farsightedness, and those who have astigmatism [4].

Moreover, a study from the American Society for Cataract and Refractive Surgery has shown that the majority of LASIK patients have positive satisfaction with the outcomes, as high as 98 percent [5].

Despite the advantages, many people who have a visual impairment may hesitate to take it because they are concerned about the long-term effects. Most refractive patients tend to encounter the following complications: dry eyes, visual aberrations, diffuse lamellar keratitis, corneal flap complications, post-LASIK ectasia, and infectious keratitis [6]. Therefore, this study aims to

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investigate whether the strengths of having refractive surgery outweigh the weaknesses. The information on the benefits and drawbacks of LASIK will aid in the decision-making process for Thai people regarding the surgery.

METHODOLOGY

Questionnaire

A cross-section study was performed using a questionnaire containing 17 questions and was designed to assess long-term effects of taking refractive surgery (LASIK) on Thai patients. Questionnaire comprises three sections: general information (4 questions), health assessment (pre surgery) (4 questions), and health assessment (post surgery) (9 questions).

Questions that had Index of Item-Objective Congruence (IOC) scores higher than or equal to 0.5 were inspected and revised by three specialists. Internal reliability of the questionnaire was determined using Cronbach's alpha to ensure that the survey results were reliable, where we obtained Cronbach's alpha value of 0.776

Sampling method

The survey was anonymously conducted using Google Form as an online survey for various occupations.

Focusing on Thai people that have visual impairments, we collected responses from 4 January 2023 to 11 February 2023, in Thailand. The number of participants was 62 people, consisting of Thai people (under 21 to more than 40 years), 17 male, 42 female, 3 LGBTQ, and 0 prefer not to say.

Statistics

The Statistic Package for Social Science (SPSS) Program version 28 was used to process all data from survey responses. All data was converted to numerical data by using descriptive statistic (mean and standard deviation)

RESULT

Table 1. General Information

Personal Information		Frequency	Percentage
Gender	Male	17	27.4
	Female	42	67.7
	LGBTQ+	3	4.8
Age	Under 21 years	1	1.6
	21-25 years	5	8.1
	26-30 years	9	14.5
	31-35 years	7	11.3
	36-40 years	12	19.4
	More than 40 years	28	45.2
Occupation	Students	2	3.2
	Office Worker	28	45.1
	Civil Servant	7	11.3
	Teacher	3	4.8

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	Physician	1	1.6
	Entrepreneur	13	21
	Freelancer	2	3.2
	Engineer	2	3.2
	Employer	1	1.6
Occupation	Business owner	2	3.2
	Retired	1	1.6
Salary	Less than 15,000	2	3.2
	15,000-29,999 Baht	2	3.2
	30,000-59,999 Baht	19	30.6
	60,000-99,999 Baht	17	27.4
	100,000-199,999 Baht	12	19.4
	200,000 Baht up	10	16.1

Table 1 illustrates that the majority of the participants were female, consisting of 46 people (67.7 %) and an office worker, consisting of 28 people (45.1%). Most of the respondents were at the age of more than 40 years old (45.2%). Most people who answered the questionnaire had an average income of about 30,000-59,999 Baht per month, consisting of 19 people (30.6%).

Table 2. Visual impairment assessment

Health Assessment		**Frequency**	**Percentage**
Medical condition	None	53	88.3
	Diabetes	1	1.7
	High Blood pressure	2	3.3
	Heart disease	1	3.2
	Thyroid	1	1.7
	Allergy	1	1.7
Long or Astigmatic sighted	Short	19	30.6
	Long	1	1.6
	Astigmatic	7	11.3
	Short and Astigmatic	26	41.9
	Short, Long and Astigmatic	9	14.5

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Wear glasses or contact lenses Wear glasses or contact lenses	Glasses	26	41.9
	Contact lenses	4	6.5
	Both of them	30	48.4
	None	2	3.2
Refractive Surgery	Less than 1 month	5	8.1
	2 to 6 months	5	8.1
	7 months to 1 year	10	16.1
	More than 1 years	42	67.7
Recuperate	Less than 2 weeks	52	83.9
	2 weeks to 1 month	8	12.9
	More than 1 month	2	3.2

According to Table 2, the majority of people don't have medical conditions which accounted for 88.3% of our sampling group. Most visual impairment obtained from the respondents were short and astigmatic eyesight accounting for 26 people (41.9 %) and the least visual impairment being long eyesight with only 1 person (1.6%). Most people wear both glasses and contact lenses(48.4%), while the second most was wearing glasses only (41.9%). Most refractive surgery takes more than 1 year for 42 people (67.7%). It takes time to recuperate and most people take less than 2 weeks to recover 52 people (83.9%).

Table 3. Shows Descriptive Statistic (Mean and Standard Deviation)

Variable	Mean	Std. Deviation	N
Post surgery	2.9751	0.57571	62

Table 3 showed the mean and standard deviation of patients post-surgery satisfaction. The mean of the post-surgery satisfaction was 2.9751 out of 5. Our results revealed that the post-surgery satisfaction had mean values relatively higher than the average of 2.5, which means that the respondents who participated were satisfied with refractive surgery.

DISCUSSION

Nowadays, visual impairments are normal symptoms that most people have. There are many types of visual impairments, such as short-, long-, or astigmatic-sightedness. These visual problems may seem normal, but in certain cases, they can lead to big problems like losing jobs that require normal vision and the inability to rely on oneself. Thus, we conducted this survey research to determine the long-term effects and satisfaction of taking refractive surgery for Thai patients. Our results indicate that the long-term effects of taking refractive surgery (LASIK) don't have too many negative consequences, as displayed in Table 3. These findings are in agreement with previous research by Kerry D. Solomon, who studied the effect of LASIK in a larger population, worldwide, a different sampling group from our study [3]. According to Kerry' study, they found that 95.4% of patients around the world who decide to undergo refractive surgery (LASIK) are satisfied with their results [3]. They also claim that clinical studies and technological innovation have been developed for more than a decade, and that LASIK surgery should be considered among the most successful elective procedures. Comparatively, among elective surgeries, LASIK is one of the most favored procedures in terms of satisfaction, generally having a high satisfaction rate. Nevertheless, results from internet blogs show that Thai people are not extremely satisfied with their refractive surgery. They still have dry eyes and double vision that affects their daily lives [12]. This contradiction is also seen in our survey study, where 38% of the LASIK patients claim that taking surgery still has negative consequences for them (Table 3). So, we cannot conclude and confidently suggest to people with vision problems that they need to

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have refractive surgery. Thus, for future studies, it is recommended to increase the sampling size and the sampling distribution to obtain better and more accurate results.

CONCLUSION

This study focuses on the long-term effects of refractive surgery (LASIK) on Thai people. We hypothesized that having refractive surgery would make life easier while not having too many long-term effects such as dry eye, double vision, blurred vision, itchy eye, tears flow, and eye stings. According to our result, we found that 62% of the patients who undergo refractive surgery (LASIK) are satisfied with the consequences. Although we did not find any correlation, we believe that this study could help people with vision problems decide more easily about having refractive surgery (LASIK).

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