

Assessment and Evaluation of the Level of Satisfaction After Lasik Among Myopic Patients in Aljouf City

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ABSTRACT

Background: Laser in situ keratomileusis (LASIK) has being used as the most effective and common refractive surgical procedure of choice for correction and elimination of myopic errors. The use of refractive surgeries has aided subjects to get rid of contact lenses either soft or rigid as well as eye glasses.

Objective: Evaluate the level of satisfaction and the impact on the quality of life in myopic patients after a LASIK operation.

Methods: This is a cross-sectional and community based survey study in which 111 participants were enrolled. All patients underwent a data collection and Satisfaction assessment including a 29 Likert model statements.

Results: High levels of satisfaction (81.9%) and quality of life (76.5%) were found among myopic patients. Most of patients did LASIK to get rid of their glasses and to have good visual results regarding to reading, driving, swimming at day light or at night. The majority of subjects revealed that the surgery achieved their goal, and 83.8% would praise LASIK for friends. Females showed a significant higher motive for performing LASIK to improve their general look. The medical professions showed lower levels of satisfaction toward quality of vision than educational professions.

Conclusion: A high level of satisfaction, quality of life and vision satisfaction was found in the present study after LASIK among myopic patients in Aljouf city.

Keywords: Lasik, Level of Satisfaction, Myopic Patients, Aljouf City, KSA

INTRODUCTION

Laser in situ keratomileusis (LASIK) has being used as the most effective and common refractive surgical procedure of choice for correction and elimination of myopic errors⁽¹⁻⁴⁾. The use of refractive surgeries has aided subjects to get rid of contact lenses either soft or rigid as well as eye glasses^(5, 6).

During LASIK, the most critical and important step is the formation of a corneal that could be accompanied by intraoperative technical obstacles resulting in postoperative complications which affects the visual perception of patients^(7, 8). The knowledge about the complications of each step, etiology, implications and the management of intraoperative as well as postoperative surgery outcomes is a must for avoiding complications and obtaining good results⁽⁹⁻¹¹⁾.

The satisfaction of myopic and astigmatism patients after LASIK was reported to be high and of great success in many studies that were conducted in Gulf region⁽¹²⁻¹⁴⁾. As the satisfaction of patients

is considered as the measurable unit for assessing the quality of procedure and medical services⁽¹⁵⁾. In addition, the worldwide satisfaction from LASIK ranged from 82-98%^(4, 16). Therefore, this study was conducted to evaluate the satisfaction of myopic patients after LASIK surgery.

Literature review

In Seoul and Pusan, a study was conducted to identify the factors influencing the post-operative satisfaction in myopia patients receiving laser in situ keratomileusis (LASIK). The study included 288 patients who received LASIK. The patients with very severe myopia tended to be more satisfied with the treatment than those with mild myopia concluding that LASIK can be more effective to those suffering from a severe visual condition⁽¹⁷⁾.

Another research aimed to study the effect of LASIK on the quality of life (QOL) and to identify the factors that may affect the level of satisfaction after LASIK in 104 patients treated with LASIK for

myopia and astigmatism in which the satisfaction with LASIK was related to visual function, preoperative expectations, psychological characteristics, and uncorrected CVA. An increased sense of subjective well-being, adaptability, and self-efficacy was evident after LASIK. Patients reported a more optimistic attitude to life and increased perceived QOL after LASIK⁽⁴⁾.

The level of satisfaction and factors affecting it were also studied among 83 patients treated with (LASIK) for various degrees of myopia (-0.75D to -16.00 D) as well as myopic astigmatism (+0.50 D to +4.50 D). Following LASIK, 96% of eyes were free from corrective lenses and only 29% reported reduced night vision clarity. In addition, the level of satisfaction was implied to be higher in this study as the majority of patients (97%) decided to have LASIK again, however, only 27% of patients had signs of dryness indicating their low levels of satisfaction⁽¹⁸⁾.

Annual surveys for 3 years were conducted in a total of 1800 patients aged between 18 and 60 years of age. These surveys were comparing patients who had LASIK with patients who continued using contact lenses for assessing the patient's satisfaction and perceived outcomes using more than one method of refractive error correction. LASIK technology was found to be more effective in improving night driving and did not significantly increase dry eye symptoms when compared with patients who continued wearing contact lenses. Subsequently, this resulted in higher levels of satisfaction at year 1, 2, and 3 of follow-up⁽¹⁹⁾.

Rationale

The prevalence of myopia and high myopia is increasing globally at an alarming rate which significantly increases the risk for vision impairment from pathological conditions associated with high myopia, including retinal damage, cataract and glaucoma. LASIK has become one of the most popular procedures for the reduction or elimination of myopic refractive errors and has emerged as the refractive corneal surgical procedure of choice for the correction of myopia.

Objective

The objective of this study was to identify the level of satisfaction and impact on the quality of life after a LASIK operation. LASIK is a refractive surgical procedure which aims into the correction of common vision problems (such as; hyperopia,

myopia, astigmatism and presbyopia) to reduce the dependence of prescription of eyeglasses and/or contact lenses.

METHODS

Study design and setting

This is a cross-sectional and community based survey study in which 111 participants were enrolled. Participants recruited in this study were patients who have had LASIK intervention for not more than the past 6 years. Participants were all resident of AlJouf Province, northern Saudi Arabia. The study was conducted during the period from March to April 2017. Participants were collected via community calls. The participants were subjected to the self-administered study performs. The study Performa contains demographic data and a 29 Likert model statements. The study Performa investigated the level of satisfaction and the impact of LASIK on the participants' quality of life.

Study population

The study population included were both males and females in ALJOUF city. The inclusion criteria were patients who had suffered from myopia aged from 21 – 70 years old and patients who had done LASIK within 5 years for at least two weeks were included in the study.

Study tool

The study tool was a self-administrated questionnaire that designed according to the study of *Bamashmus et al.*⁽²⁰⁾ with some modifications, then tested by 3 experts and translated into Arabic then distributed among included subjects. The questionnaire consists of information about:

- 1- Demographic characteristics: age, gender, education level, employment and the place where LASIK was performed.
- 2- Satisfaction assessment including a 29 Likert model statements assessing the level of satisfaction and the impact of LASIK on the participants' quality of life.

Ethical considerations

An informed consent was obtained from the participants included in this research before filling the questionnaire. The ethical approval was obtained from the Ethical Committee of FBC of the College of Medicine of Al Jouf University.

Statistical analysis

Data were entered into the Statistical Package for Social Sciences (SPSS, version 24, SPSS, Chicago, IL, U.S.A.) and descriptive analysis was conducted. The results were reported as percentages of 95% confidence interval (95% CI).

RESULTS

-Demographics

This study involved 111 participants who were 78 males and 33 females (70.3% and 29.7%, respectively all are resident in Al Jouf Province, northern Saudi Arabia. 93 individuals (83.8%) of the study population aged from 21-50 years and 18 subjects aged more than 50 years old. The majority of study population (41.4%) were working in education, 19 (17.1%) in the medical field, 15 (13.5%) in private and commercial sectors, and 8 (7.2%) were military while 23 (20.7%) were unemployed. Regarding to the place where LASIK was done, 52 (46.8%) of study population did LASIK inside the Kingdom of Saudi Arabia (KSA), where 49 (44.1%) did the operation in Jordan and 10 (9%) performed the operation elsewhere.

-The responses of study population

Table 1 shows the responses of study population to the study Performa illustrated by mean and percentage. The majority of patients agreed that the reason behind their LASIK operation was to get rid of glasses (82.8%), while 6.3% of them disagreed and 10.8% were not sure. Also, 44.1% of the patients did LASIK for improving their general look while 21.6% of them were not sure about this aim and 34.2% disagreed. In addition, the majority of patients (65.7%) disagreed that they were undergoing LASIK for removing the need of wearing contact lenses while only 28.8% of them agreed.

As for the occupational aim, only 30.6% did LASIK for their job requirements, but in 45.9% of them this was not the cause and 23.4% were not sure. The majority of patients had a high degree of understanding of the procedure (54%) and its importance (72.9%) while only 18.9% and 15.3% disagreed, respectively. Out of the 111 patients, 93

(83.7%) agreed about high general levels of quality of life, whereas only 9% disagreed and 7.2% were not sure. No complications were found among 43.2% of subjects for dry eye and 53.3% for burning sensation though 21.6% and 14.4% were not sure along with 35.1% and 34.2% who experienced dry eye and burning sensation, respectively.

The duration of improvement was found to be short among most patients (83.7%). The achievement of goals was high in 82.8% of patients while 9% and 8.1% of patients were not sure and disagreed about goals achievement, respectively. The quality of life and the level of satisfaction were high in the majority of patients (76.5% & 81.9%, respectively) indicating good levels of satisfaction and high quality of life after LASIK. The majority of patients (83.7%) will advise friends for doing LASIK, but 7.2% were not sure and 9% disagreed on recommending LASIK for friends.

Higher levels of satisfaction were as well reported among the majority of patients regarding to driving at morning (79.2%), driving at night (69.3%), no halos during night driving (40.5%) but whereas 30.6% of them disagreed. Likewise, the majority of patient report no shiny lights during night post LASIK (49.5%), but 33.3% experienced these shiny lights during nights and 17.1% were not sure.

Considering to the satisfaction with reading, 63% have high satisfaction about reading during the day, 50.4% were comfortable about reading at light during night, and 70.2% had no complications in reading under light.

Moreover, higher satisfaction levels were found during computer working in 71.1% of patients; as well as high satisfaction during watching TV in 83.7% and 83.7% were satisfied during daily practice. In addition, high satisfaction level was found between patients during swimming (77.4%) and after swimming (75.6%).

The average levels of satisfaction were high in 66.2% while 14.8% were not sure and 19% were not satisfied.

Table 1: The responses of study population toward LASIK

	Disagree		Not sure		Agree		Mean
	N ^o	%	N ^o	%	N ^o	%	
Glass independent	7	6.3	12	10.8	92	82.8	4.43
improving the general look is the aim	38	34.2	24	21.6	49	44.1	3.23
removing lenses is the aim	73	65.7	6	5.4	32	28.8	2.34
occupational is the aim	51	45.9	26	23.4	34	30.6	2.69
degree of understanding	21	18.9	20	18	60	54	3.80
importance of LASIK	17	15.3	13	11.7	81	72.9	4.02
Quality of vision in general	10	9	8	7.2	93	83.7	4.33
No dry eye due to LASIK	39	35.1	24	21.6	48	43.2	3.08
No burning sensation after LASIK	38	34.2	16	14.4	57	51.3	3.25
short duration of improvement	6	5.4	12	10.8	93	83.7	4.42
goals achieved	9	8.1	10	9	92	82.8	4.34
Quality of life	10	9	16	14.4	85	76.5	4.22
Level of satisfaction	12	10.8	8	7.2	91	81.9	4.32
Will you advice friends	10	9	8	7.2	93	83.7	4.45
driving at morning	10	9	13	11.7	88	79.2	4.32
night vision before LASIK	13	11.7	18	16.2	80	72	4.07
Driving at night	19	17.1	15	13.5	77	69.3	3.95
no halos during night driving	34	30.6	23	20.7	45	40.5	3.31
no shiny lights during night	37	33.3	19	17.1	55	49.5	3.31
comfortable about light during night	35	31.5	20	18	56	50.4	3.29
reading during the day	19	17.1	22	19.8	70	63	3.79
reading under light	13	11.7	20	18	78	70.2	3.99
satisfy during computer working	8	7.2	24	21.6	79	71.1	4.12
satisfy during watching TV	9	8.1	19	17.1	93	83.7	4.17
Satisfy during work out	8	7.2	10	9	93	83.7	4.39
Satisfy during swimming	9	8.1	16	14.4	86	77.4	4.21
Satisfy after swimming	9	8.1	18	16.2	84	75.6	4.17
Average		19%		14.8%		66.2%	3.85

- Gender differences in response to LASIK:

Females were significantly higher than males regarding to doing LASIK for improving the general look. Furthermore, females had significantly higher levels of satisfaction after LASIK in response to no presence of dry eye or shiny lights during night.

Table 2: Differences between responses of males and females.

improving the general look is the aim	0.02 (female 3.9- Male 2.9)
No dry eye due to LASIK	0.03 (female 2.6, male 3.2)
no shiny lights during night	0.015 (female 2.7, male 3.5)

- Profession difference in response to LASIK:

Medical professions showed significantly higher levels for performing LASIK in order to become glass independent.

On the other hand, education professions showed higher levels of satisfaction compared to medicals regarding to no dry eye, no burning sensation, no halos during night driving, no shiny light during night and being comfortable about light during night.

Table 3: Differences between responses medical and educational professions.

Glass independent	0.005 (medical 4.2, education 3)
No dry eye due to LASIK	0.015(medical 2.4, education 3.45)
No burning sensation after LASIK	0.015(medical 2.7, education 3.6)
no halos during night driving	0.001(medical 2.5, education 3.7)
no shiny lights during night	0.001(medical 2.4, education 3.7)
comfortable about light during night	0.002 (medical 2.4, education 3.6)

Regarding to the association between the quality of life and the place where LASIK was conducted, the majority of patients in Jordan strongly agree that their life changed to better (36 out of 49 subjects). However, lower levels of quality of life were found in patients who performed LASIK in KSA as out of 52 subjects, 34 individuals who performed their surgery at KSA strongly agree that their life had changed to better after LASIK from which we could conclude that the level of satisfaction and quality of life was higher in patients conducting LASIK in Jordan than KSA.

DISCUSSION

Patient’s satisfaction is the focus of many researchers for improving the quality of life and assessing the success of their procedures. Surgeons should evaluate the patient’s satisfaction following refractive surgery to avoid post-operative error⁽¹⁴⁾. The majority of studies revealed a high level of satisfaction and quality of life after LASIK, but the small number of patients with negative feedback could impact the other patients attitude and ophthalmic personnel.

Moreover, the lack of positive feedback on LASIK procedures would declare the patient’s suspicion about the clinical outcomes and help surgeons to identify the conventional factors that could impair LASIK function during the postoperative period as well as the monitoring the factors that result in high levels of patient satisfaction^(4, 16, 21, 22). Thus, this study aimed to identify the level of satisfaction and impact on the quality of life after a LASIK operation. The present study showed high levels of patient satisfaction, quality of life and good refractive

outcome. The majority of patients also indicated that their goal was achieved and have good feedback regarding the surgery. In consistence with our results, a recent study showed a very high level for refractive outcome as well as for the mean score of the overall satisfaction rate, in which 98.55% of patients showed that the surgery achieved their main aim and would do the surgery again if available⁽¹³⁾. In addition, other studies have shown that the levels of satisfaction ranged from 82-98%^(4, 16, 23).

The patients in the present study reported high levels of quality of vision as the majority of patients had no problems in halos, glare, and night vision complaints. However, conflicting studies showed a high prevalence of these outcomes including glare, halos and bad vision at night even with good levels of satisfaction and quality of life^(4, 16).

During the study, the main reason for LASIK in the majority of included patients was to get rid of their glasses (82.8%) which was in accordance with the study of Bamashmus and colleagues⁽¹³⁾.

In the present study, females showed a significant higher difference regarding to doing LASIK for improving their general look and their levels of satisfaction. In agreement, the satisfaction of 13,65% patients after surgery showed that females were higher in seeking for LASIK treatment than men to get rid of glasses⁽²⁴⁾.

Also, our study showed that medical professions showed a lower levels of satisfaction about quality of vision than educational professions and this could be attributed to the reason that medical professions have sufficient knowledge about the impact of LASIK and their clinical outcomes and could observe even fine changes in their vision quality.

The level of satisfaction and quality of life in subjects who did LASIK in Jordan was higher than that of KSA. This could be attributed to the fact that Al-Jouf city don’t have many LASIK centers. Moreover, Jordan is considered the closest to subjects (residents of Al-Jouf city) and is much closer to them than the capital of Saudi Arabia (Riyadh). Furthermore, prices in Jordan were found to be lower than that of KSA.

CONCLUSION

A high level of satisfaction, quality of life and vision satisfaction were found in the present study after LASIK in myopic patients in Aljouf city, especially in those who performed LASIK in Jordan. Further

studies should be conducted all over KSA to assess the impact of LASIK on visual function parameters as well as to ensure the quality of life in order to enhance the use of LASIK in KSA. Generally, we recommend LASIK for both genders with the advice of not driving at night after surgery for avoiding car accidents. The most common complication reported in our study after LASIK was eye dryness.

REFERENCES

1. **AlArfaj KHantera MM (2014):** Comparison of LASEK, mechanical microkeratome LASIK and Femtosecond LASIK in low and moderate myopia. *Saudi Journal of Ophthalmology*, 28: 214-219.
2. **Shortt AJ, Allan BDEvans JR (2013):** Laser-assisted in-situ keratomileusis (LASIK) versus photorefractive keratectomy (PRK) for myopia. *The Cochrane database of systematic reviews*, 1: Cd005135. Available at: <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005135.pub3/abstract>
3. **Dirani M, Couper T, Yau J, Ang EK, Islam FM, Snibson GR et al. (2010):** Long-term refractive outcomes and stability after excimer laser surgery for myopia. *Journal of cataract and refractive surgery*, 36: 1709-1717.
4. **Lazon de la Jara P, Erickson D, Erickson PStapleton F (2011):** Visual and non-visual factors associated with patient satisfaction and quality of life in LASIK. *Eye (London, England)*, 25: 1194-1201.
5. **Solomon KD, Fernandez de Castro LE, Sandoval HP, Biber JM, Groat B, Neff KD et al. (2009):** LASIK world literature review: quality of life and patient satisfaction. *Ophthalmology*, 116: 691-701.
6. **Hashmani S, Hashmani N, Rajani H, Ramesh P, Soomro JA, Hussain Shah SR et al. (2017):** Comparison of visual acuity, refractive outcomes, and satisfaction between LASIK performed with a microkeratome and a femto laser. *Clinical ophthalmology (Auckland, NZ)*, 11: 1009-1014.
7. **Romero-Diaz-de-Leon L, Serna-Ojeda JC, Navas A, Graue-Hernández EORamirez-Miranda A (2016):** Intraoperative Flap Complications in LASIK Surgery Performed by Ophthalmology Residents. *Journal of ophthalmic & vision research*, 11: 263-267.
8. **Nakano K, Nakano E, Oliveira M, Portellinha WALvarenga L (2004):** Intraoperative microkeratome complications in 47,094 laser in situ keratomileusis surgeries. *Journal of refractive surgery (Thorofare, NJ : 1995)*, 20: S723-726.
9. **Sridhar MS, Rao SK, Vajpayee RB, Aasuri MK, Hannush SSinha R (2002):** Complications of laser-in-situ-keratomileusis. *Indian journal of ophthalmology*, 50: 265-282.
10. **Shaikh NM, Wee CEKaufman SC (2005):** The safety and efficacy of photorefractive keratectomy after laser in situ keratomileusis. *Journal of refractive surgery*, 21: 353-358.
11. **Beerthuizen JJSiebelt E (2007):** Surface ablation after laser in situ keratomileusis: retreatment on the flap. *Journal of cataract and refractive surgery*, 33: 1376-1380.
12. **Al-Tobaigy FM (2012):** Efficacy, predictability, and safety of laser-assisted subepithelial keratectomy for the treatment of myopia and myopic astigmatism. *Middle East Afr J Ophthalmol.*, 19: 304-308.
13. **Bamashmus MA, Hubaish K, Alawad MALakhlee H (2015):** Functional Outcome and Patient Satisfaction after Laser In Situ Keratomileusis for Correction of Myopia and Myopic Astigmatism. *Middle East African Journal of Ophthalmology*, 22: 108-114.
14. **Abdelghany AAAlio JL (2014):** Surgical options for correction of refractive error following cataract surgery. *Eye and Vision*, 1: 2.
15. **O'Doherty M, O'Keeffe MKelleher C (2006):** Five year follow up of laser in situ keratomileusis for all levels of myopia. *The British journal of ophthalmology*, 90: 20-23.
16. **Tahzib NG, Bootsma SJ, Eggink FA, Nabar VANuijts RM (2005):** Functional outcomes and patient satisfaction after laser in situ keratomileusis for correction of myopia. *Journal of cataract and refractive surgery*, 31: 1943-1951.
17. **Cho W, Kang HY, Kim JY, Chung Y, Lee JLee J (2004):** Assessing the Factors Influencing Patient Satisfaction after Receiving Laser in situ Keratomileusis (LASIK). *J Prev Med Public Health*, 37: 111-119.
18. **Miller AE, McCulley JP, Bowman RW, Cavanagh HDWang XH (2001):** Patient satisfaction after LASIK for myopia. *CLAO J.*, 27: 84-88.
19. **Price MO, Bucci FA, Durrie DS, Bond WIPrice FW (2016):** Three-Year Longitudinal Survey Comparing Visual Satisfaction with LASIK and Contact Lenses. *Ophthalmology*, 123: 1659-1666.
20. **Bamashmus MA, Hubaish K, Alawad MALakhlee H (2015):** Functional outcome and patient satisfaction after laser in situ keratomileusis for correction of myopia and myopic astigmatism. *Middle East Afr J Ophthalmol.*, 22: 108-114.
21. **Lee EK, Kwon JW, Hyon JYHan YK (2012):** Satisfaction level of physicians who have undergone corneal refractive surgery. *Korean journal of ophthalmology : KJO.*, 26: 331-338.
22. **Nehls SM, Ghoghawala SY, Hwang FSAzari AA (2014):** Patient satisfaction and clinical outcomes with laser refractive surgery performed by surgeons in training. *Journal of cataract and refractive surgery*, 40: 1131-1138.
23. **Bailey MDZadnik K (2007):** Outcomes of LASIK for myopia with FDA-approved lasers. *Cornea*, 26: 246-254.
24. **Brown MC, Schallhorn SC, Hettlinger KAMalady SE (2009):** Satisfaction of 13,655 Patients With Laser Vision Correction at 1 MonthAfter Surgery. *Journal of refractive surgery*, 25: S642-S646.