

Original Research Article

Knowledge, attitude and practices regarding surgical correction of refractive errors among undergraduate medical university students.

Abstract;

Aim; The current study was aimed to evaluate the knowledge, attitude and practices regarding refractive error surgeries among undergraduate medical students.

Study design; Cross-sectional study design was used.

Place and study duration; The study was conducted amongst the undergraduate MBBS students studying at Dow Medical College, Karachi. The duration of study was seven months (August, 2019 till February, 2020).

Methods; A sample size of 189 was calculated for the study with confidence level 95% and confidence limit 5%. Data was collected through a validated self-administered questionnaire which was divided in five subsections used to gain information regarding participant's demographics, knowledge, attitude and practices regarding refractive error surgeries. Data was analyzed using SPSS V.20.

Results; A total of 189 students with a mean age of 21 ± 1.8 years were included. Out of 189 participants, 112 (59.3%) had different kinds of refractive errors. The most frequently used method for visual correction was glasses, which was used by 76 (67.9%) participants. Most of the participants 72 (66.7%), use refractive error correction methods all the time. More than half of respondents 142 (75.5%) have heard about refractive error correction surgery. Majority of the participants 117 (66%) responded negative for opting the surgery because most of them 30 (25.6%) were afraid of results.

Conclusion; We found that majority of the participants were aware about refractive error correction surgeries yet most of them showed unwillingness for these procedures. This negative attitude must be changed to positive in order to enhance the practice for these procedures.

Key words; Refractive error, Photorefractive Keratometry, Laser Assisted in Situ Keratomileusis

INTRODUCTION:

The term refractive error is coined as a type of visual disturbance in which the light rays from an object cannot be precisely focused onto the Retina [1]. Studies state that refractive errors are not uncommon and they top the list of prevalent visual impairments, globally. Also, it is the second most common reason for the kind of blindness which is treatable [2]. Even in high income country such as USA around 80% of the adults face refractive errors [3]. In Pakistan, the rate of blindness due to refractive errors only, even in the presence of eye care facilities are as high as 13.8% in Punjab, 6.9% in Sindh and 17.4% in Balochistan [4]. The prevalence of refractive errors i.e. myopia, hypermetropia and astigmatism was found to be 36.5%, 27.1%, and 37%, respectively in Pakistan [5].

Refractive error surgeries refer to procedures performed to provide the near perfect vision to the patient. There are a number of methods used but the most common ones are PRK (Photorefractive Keratometry) and LASIK (Laser Assisted in Situ Keratomileusis). In 1939 a Japanese ophthalmologist Sato treated astigmatism and keratoconus via anterior and posterior Keratometries for the first time. This occurred in the light of his previous study in which the degree of myopia was reduced in a patient of keratoconus [6]. Most of the students in a previous study were aware about spectacles (92%) as a modality to correct low vision, 54% reported contact lenses can be used for refractive error correction and only 14% knew about surgery as a mode of vision correction [7].

Several studies have been conducted regarding the outcomes, innovations, post operational (Post op) complications of refractive error surgeries, but a lack of evaluation of perception and attitudes of people regarding these procedures was found in the existing literature [8-10]. Inadequate knowledge and inaccurate beliefs towards refractive error procedures reported to play a major role in the involvement of refractive services in various continents [11].

The current study was aimed to evaluate the knowledge, attitude and practices regarding refractive error surgeries among undergraduate medical students. The results will help to indicate the need for conduction of campaigns to create awareness and change the negative perceptions towards refractive error surgeries in medical students themselves, and also in general population through them.

MATERIAL AND METHODS:

This was a cross-sectional study which was conducted amongst the undergraduate MBBS students studying at Dow Medical College, Karachi. The duration of study was seven months (August, 2019 till February, 2020). All MBBS students from first to final year were included in the study. Those not willing to participate, visiting students and students from other departments were excluded. A sample size of 189 was calculated for the study with confidence level 95% and confidence limit 5%. Non-probability convenience sampling technique was used. A self-administered questionnaire was used in the respective study which was formulated after careful evaluation of the previous literature. The questionnaire was validated by a pilot study on 20 students and a Crohn-bach alpha value of 0.83 was obtained. A written informed consent was taken from every participant stating the purpose of the study, making sure their anonymity, informing them the right to with draw from the study whenever they wish to. The questionnaire comprised of 5 sections. First section consisted of the demographic details while the second section had questions regarding the refractive errors if they had any. Third section inquired information pertaining to their knowledge about refractive error surgery. Section four was used to assess the attitude of participants towards the respective method of correction of refractive errors. Section five aimed to evaluate the practices regarding refractive error surgeries amongst medical students. All ethical considerations were observed during the study and the study was also approved by the Institutional Review Board of Dow Medical College. The data was analyzed using SPSS version 22. The qualitative data was presented in frequencies and quantitative data was presented in mean and standard deviation.

RESULT:

A total of 189 respondents were included in our study. There were 150 (79.4%) females in the study and the rest were males. The age range of the participants was 19 to 24 years. The mean age of the participants was 21 ± 1.8 years. Out of 189 participants, 112 (59.3%) had different kinds of refractive errors. Majority of the members 98 (87.5%) had myopia, hyperopia was present in 9(8%) participants and 5(4.5%) had astigmatism. Most of the participants 59(52.7%) with refractive errors were identified with these refractive errors during the age of 5-16 years. The most frequently used method for visual correction was glasses 76 (67.9%). Some respondents 29(25.9%) were using both glasses and contact lenses for refractive error correction. A few members 7(6.3%) reported that they had refractive error but they did not use any method to correct that error. Many 72(66.7%) of the participants use refractive error correction methods all the time while others used them only for work/study 32 (29.6%), 10(9.3%) participants were using these methods while driving, 9(8.3%) use them while watching TV and 8(7.4%) were using correction methods while using computer.

More than half of respondents 142 (75.5%) have heard about refractive surgery. Around half of the students 90 (47.6%) agreed that they did not know about different surgical procedures used for refractive error correction while only few members 45 (23.8%) were found to be aware of different surgical procedures available for refractive error correction. The most common reasons for refractive error surgery reported by the participants are presented in **table 1**.

Table 1: Indications for refractive error surgery reported by participants.

Indications	N (%)
Myopia	134(72.8)
Hyperopia	121(65.8)
Astigmatism	124(67.4)
Presbyopia	59(32.1)

The chief complications of surgery shared by participants were infections (86), under correction (82), blindness (78), over correction (72), dry eye syndrome (66) and keratitis (540). The major sources of information regarding refractive error surgery reported by students were university 82(43.6%), Ophthalmologist 56(29.3%), family 40(21.3%) and friends 38(20.2%).

Majority of the participants 117 (66%) responded negative for opting the surgery because most of them 30 (25.6%) were afraid of results. Other reasons for reluctance towards surgery are presented in **table 2**.

Table 2; Reasons for reluctance towards surgery

Reason	N (%)
Afraid of results	30 (25.6)
Advised against it by doctors	23 (19.4)
Lack of knowledge	18 (15.6)
Do not trust the procedure	18 (15.6)
Financial constraints	15 (12.5)
Lack of opportunity	10 (8.8)
Do not trust the doctors	3 (2.5)

Only 3 (1.6%) members have undergone refractive error surgery; 2 (66.7%) for Myopia in their college life and 1 (33.3%) for hyperopia in their young adult life but all of them (100%) were satisfied from the procedure.

Discussion:

Refractive errors are a common problem worldwide with 1-2 billion people affected by it and are one of the treatable causes of blindness. The prevalence of refractive error in our study participants was found to be 59.3%. A study conducted in India [13] reported almost similar results with 54% prevalence of refractive error among their medical graduates but study conducted in Brazil [6] reported much higher percentage 70.8% of medical students being affected by refractive errors. One reason for this higher percentage could be better awareness and vigilant screening of individuals for refractive errors. In our country no screening programs are run to diagnose people with refractive error and people only consult Ophthalmologist when they face any problem with their vision. Therefore, rigorous screening should be done to identify undiagnosed people with refractive errors at early age and prevent future complications which people with high refractive errors face. Majority (64.9%) of our study participants used refractive glasses for correction of their errors. This frequency of glasses use for refractive error correction is higher than previous studies conducted by Gameiro Filho AR et al [6] and Alghamdi AH et al [14] who reported the frequency of glasses use for refractive error correction to be 51.8% and 49% respectively.

Awareness about recent methods of visual correction is increasing rapidly, worldwide. Medical personal are the outmost sources of knowledge and awareness about the new advances in medical science, their benefits and hazards as well. Our study aimed to evaluate the perceptions and knowledge of medical students about the surgical correction of refractive errors and reflected that 75.5% medical undergraduates have heard about correction of refractive error by surgery in contrast to a Nigerian [8] survey in which 52.8% knew about it among the general population. This indicates that medical student's knowledge in this regard is better than general population which is understandable. A large percentage of 47.6% students claimed to have knowledge about the procedure of refractive surgery. This result is in accordance with the study conducted in University of Londrina, Brazil [6] stating that 49.2% of respondents in their study were familiar with surgical procedure. The similar study reported that ophthalmologist were the major source of knowledge for 23.5% of their medical students. This is in correspondence with the current survey which revealed ophthalmologists to be the source of knowledge for 29.8% participants.

The major reason behind this could be that medical students are more in contact with medical personals as compared to the general population.

In our study 66% members showed unwillingness for correction of refractive error through surgery. This is comparable to a research conducted in India by Puri SK et al [15] who reported that 65.9% of their study population did not show willingness for refractive error correction surgery. The chief reasons narrated for this negative attitude were the fear of results and the discouraging advises of doctors reported by 33.9% and 25.6% of the participants respectively. A previous study conducted by Gameiro Filho AR et al [6] supported our findings with disapproving advises from doctors for surgery being the reason for non-compliance in 30.2% of the participants.

Bringing into light the practices of refractive error surgery, only 3(1.6%) of our respondents had undergone surgery for refractive error correction. Our results showed discouraging results when compared to studies conducted in Brazil [6], Iran [12] and Saudia Arabia [16] where 3(2.2%), 8(4%) and 8(4.8%) had undergone surgery for refractive error correction.

Conclusion:

Surgical correction of refractive errors is one of the most amazing and advantageous advancement in the field of ophthalmology. It helps to reduce the dependency on glasses and is also cosmetically better. Medical professionals are the ones gaining first hand knowledge about such advancements. Their knowledge along with their attitudes have a huge impact on the perception of general population. We found a higher percentage of individuals aware, yet with a negative attitude ultimately leading to low scores for practice for refractive error surgery. The perception of the doctors and future doctors about surgery needs to change towards a positive one in order to enhance the practice for it.

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