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Research Article

Effect of Psychoneurobics (Meditation Technique) on Status of Anxiety in Patients Undergoing Cataract Surgery: A Randomized Controlled Trial

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Abstract

Introduction: Anxiety is a normal adaptive reaction to stress. Preoperative anxiety around cataract surgery affects a large proportion of patients, despite advances in technique and anesthesia administration. Thus, cancellation of cataract surgery due to anxiety is a challenge in the preoperative care of patients. Psychoneurobics is a meditation technique through complete involvement of mind, body and soul in which cosmic energy is inhaled through the power of mind and then transferred to the body's neuro system. So the objective of the present study was to assess the effect of psychoneurobics on anxiety level of patients undergoing cataract surgery.

Materials and Methods: A prospective randomized control study was carried out in a private eye hospital. One hundred patients undergoing cataract surgery were enrolled and randomized into two groups, namely, experimental group (receiving psychoneurobics and counseling both, n=50) and control group (receiving counseling only, n=50). Anxiety was measured using Amsterdam Preoperative Anxiety and Information Scale (APAIS) preoperatively before and after the psychoneurobics and counseling.

Result: In the study, during first assessment, done before psychoneurobics/counseling, anxiety level of experimental group was found higher than the control group. However, in second assessment (after intervention), experiment group receiving psychoneurobics showed a higher decrease in anxiety (APAIS score) than control group. This finding was statistically significant (7.74±2.15 vs. 12.2±2.64, $p<0.001$).

Conclusion: Psychoneurobics, the mind-body intervention, was found to be effective in reducing the anxiety of patients undergoing cataract surgery.

Clinical Trial Registration: CTRI/2018/04/012999

Keywords: Anxiety, Psychoneurobics, Cataract

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Introduction

Cataract surgery is one of the most common operations performed under local anesthesia on a day-care basis. So it is imperative that the patient remains still during surgery. It is safest and most effective but as patients preoperatively know that they will remain fully conscious during the procedure, they become anxious and stressed. Preoperative anxiety during cataract surgery affects a large proportion of patients, despite advances in technique and anesthesia administration. Pre-operational anxiety can range from physical symptoms (jitteriness, restlessness and edginess) to sympathetic manifestations (increased pulse and respiratory rate, blood pressure and urinary frequency). These can lead not only to cancellation of surgeries, but also to suboptimal surgical outcomes or vision-threatening complications, if operated. There are various non-pharmaceutical anxiety relieving alternative strategies to limit patient anxiety preoperatively and improve comfort level. Among all, meditation is reported to have a consistently positive and statistically significant effect on reducing pre-operative anxiety.[1] Psychoneurobics, a meditation technique, is a newly emerging branch in the field of healing science and is basically an energy therapy. It produces effective healing through complete mind, body, and soul involvement. It encapsulated the supporting aspects of Rajyoga and Mudra healing. It integrates light (color) neurobics, sound (guided meditation and music) neurobics, and easy (mudra) neurobics. It establishes a direct link between soul, mind and physical wellbeing which control the mind and makes the thinking positive by inculcating the flow of spiritual energy[2]. Although meditation has been practiced for centuries, it is only recently that the effects of meditation have been studied more extensively within the scientific community. As modern science has now acknowledged the role of psyche, thought, and emotions in healthy and unhealthy response in the body, the present study is designed with the objective to assess the anxiety provoked by cataract surgery and to assess the change in anxiety after psychoneurobics among patients undergoing cataract surgery.[3]

Materials and Methods

The current study was conducted as a randomized control trial at SGV Eye Hospital, Raipur, Chhattisgarh, from December 2017 to March 2018. All patients fulfilling inclusion criteria, i.e., above 40 years of age, having cataract, controlled hypertension and diabetes mellitus, planned for phacoemulsification mode of surgery performed under peri-bulbar (local) anesthesia, and who had given consent for the study, were included in the study. Those having congenital, traumatic cataract, associated ocular or systemic comorbidities and mental illness were excluded from the study. Patients having cataract were consecutively recruited from SGV Eye Hospital Raipur, Chhattisgarh, to participate in this double-armed randomized controlled intervention study. Fifty patients were randomly allocated each to the control group and the intervention group. The study design is presented in Fig. 1. After random allocation of subjects into two groups, both the groups were sent to two separate rooms for pre-interventional assessment and preoperative check-ups. The subjects in group 1 received psychoneurobics intervention and were considered as the experimental group and group 2 became the control group. The persons who collected data with these two groups and counseled them were trained nurses. Experimental group underwent psychoneurobic meditation with counseling regarding anesthesia and surgery and the control group received only counseling for the same duration. Psychoneurobic meditation was also trained to experimental group by a trained person. As this was a behavioral interventional study, so blinding at patient level was not possible. So blinding was done at investigator level (researcher, nursing staff) and analyst level. All the necessary details obtained through interviews were age, sex, religion, caste, education, occupation, place of residence, type of family, current spouse status (dead/alive), characteristics of the past and present medical surgery such as the underlying illness, possible complications, previous surgeries, method of anesthesia, whether belonging to rural or urban background and mode of payment of surgery whether patient is insured or not. The time required to fill whole information took approximately ten minutes. Pre-operative physiological indices recording included respiration rate, heart rate, and blood pressure and blood sugar. The tool used in study was Amsterdam Preoperative Anxiety and Information Scale (APAIS) developed by a Dutch group from the University of Amsterdam in the Netherlands, Moermann, in 1996. The APAIS can be used to evaluate a patient's anxiety prior to undergoing anesthesia and surgery. The high acceptance of the APAIS by patients was proven in different studies and also in ophthalmology.[4] The instrument consists of six statements related to the patient's anxiety or concern about undergoing anesthesia and is, therefore, an economical instrument. The items are rated on a five-point Likert scale with the end poles "not at all" (1) and "extremely" (5). It has three subscales, i.e., anesthesia-related anxiety, surgery-related anxiety, and need for information. It constitutes two scales: a) combined anxiety (Cronbachs α=0.86) and b) need-for-information (Items 3+6; Cronbachs α=0.72). Combined anxiety component was calculated by summing two subscale anesthesia-related anxiety and surgery-related anxiety (1+2+4+5). The primary outcome was combined anxiety score. For any subscale (anesthesia-related anxiety, surgery-related anxiety and need for information), minimum score was 2 and maximum score was 10. For anxiety scale, minimum score was 4 and maximum was 20. The higher the scores, the greater the degree of anxiety or need for additional information. A total value was calculated by adding up the two scales, i.e., anxiety and need-for-information. The combined anxiety score of ≥11 was taken

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as the patient was anxious and ≥5 as patient required more information about anesthesia and surgery. After collecting all the required information, the patients in both the groups were informed and counseled for the anesthesia given and surgical procedure. Queries asked by the patient were also solved to decrease the anxiety caused by surgery.

Intervention to Experimental Group

Propounder of the healing science 'Psycho Neurobics' is Dr BK Chandra Shekhar. Psychoneurobics is the science and technique of creating right vibrations in the body. In this group, psychoneurobic training was given to the patients before undergoing surgery. Basic concepts and training were given to patients as well as to family members and they were advised certain instructions to be followed. The patients were advised to practice psychoneurobic meditation in short sessions of half an hour in a dimly lit room in the hospital setup meant for the purpose of teaching meditation. It was a simple technique of maintaining harmonious relationship between mind, body, spirit and the universe. By applying certain meditation techniques and exercises using specific colors, sounds and 'mudras', divine energy received from universe or Supreme God by soul which then goes to mind. This further raises the frequency of subconscious mind that helps to enhance the strength of mind and will power, and heals physical body. When done regularly over a period of time, this passive energy is replaced by a more active form of energy.

Control Group

The patients in this group did not receive any such type of mediation training. However, in this group, the patients and their care takers were counseled in the same room and were made aware about the surgery and anesthesia.

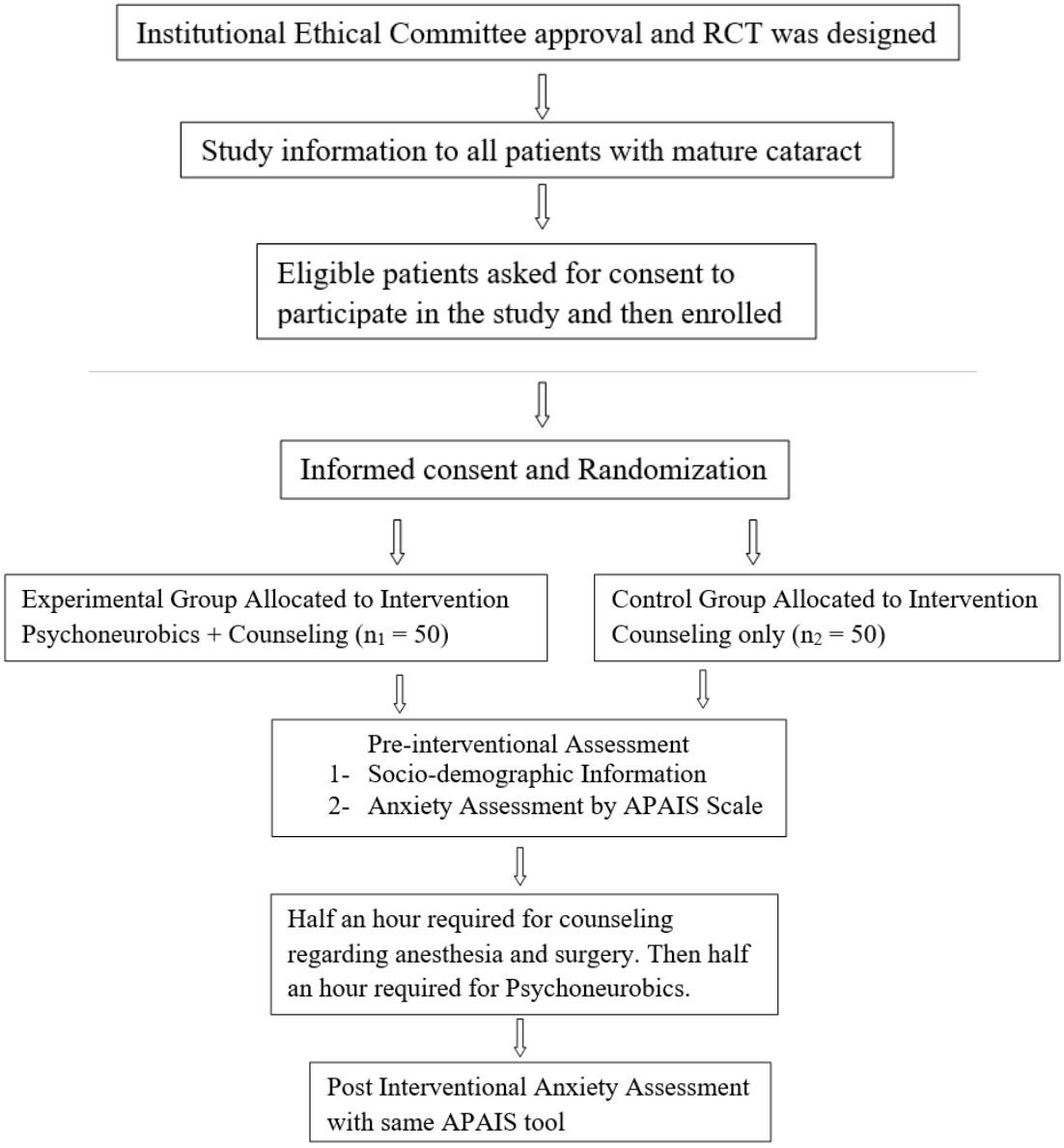

Figure 1.Study Design Including Enrollment, Allocation and Follow-up

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Statistical Data Analysis

The data was entered in Microsoft Excel format. The descriptive statistical analysis was represented as frequency, percentage, mean, and standard deviation. The inferential statistical analysis included *t*-test and chi-square test to determine the presence of significant differences. *P* values <0.05 were considered statistically significant.

Ethical Considerations

All the patients and their attendants were informed about purpose and procedure of study. Informed consent was obtained before enrolment and confidentiality was assured. The participants were advised that they were free to withdraw from the study at any point of time. Fundamental ethical principles including respect for individuals, and not causing harm/hurt were observed. The risk of privacy intrusion was minimized by requiring informed consent. Participation in the study was voluntary and the participants were assured that he/she could discontinue from study at any point if they so desired. Responsiveness and flexibility about the patient's condition and motivation for participating in the study was considered. The trial started after approval from the Institutional Ethical Committee of Shriganesh Vinayak Eye Hospital, Raipur, Chhattisgarh (ECR/918/Inst/CG/2018). The study was registered in Clinical Trials Registry India (Regd No. CTRI/2018/04/012999).

Results

A total of one hundred patients were included in the study, who attended the study center for cataract surgery and were randomized into two groups, i.e., intervention group and the control group. The clinico-epidemiological data of the patients in the two groups is presented in Table 1. The mean age of patients and sex distribution in both the groups were comparable (60.18±9.04 vs. 61.54±9.2 p>0.05, Male:Female 31:19 vs. 24:26 p>0.05). Other variables were also distributed equally and did not show any significant difference (education, residence, family type, mode of payment, p>0.05) (Table 1). As evident from Table 2, regarding preoperative pre-interventional anxiety assessment, majority of the subjects in both experimental and control group were anxious (90% and 84% respectively). The initial pre-interventional mean score for combined anxiety scale and score was found higher in experimental group than in control group (15.36±2.89, 12.78±2.32 respectively) (Table 3). Figure 2 represents pre- and post-interventional comparison of patient's anxiety score in both the groups. This shows that patients were still anxious about surgery and anesthesia after intervention in both the groups, but decline in number of patients with anxiety as well as anxiety score was higher in experimental group which had undergone psychoneurobics meditation than control group and this change was statistically significant (12% vs 74%, combined score 7.74 vs 12.2, p<0.001).

Table 1.Clinico-epidemiological Profile of Matched Study Subjects (n1=n2=50)

Variables	Experiment Group	Control Group	p value
Age in years (mean)	60.18±9.04	61.54±9.2	p=0.46
Sex (male:female)	31:19	24:26	p=0.16
Religion (Hindu:others)	37:13	32:18	p=0.28
Education (up to primary:higher than primary)	35:15	36:14	p=0.64
Place (rural:urban)	43:7	40:10	p=0.42
Family type (joint:nuclear)	12:38	6:44	p=0.096
Having insurance:Not having insurance	All patients have insurance.		

Table 2.Distribution of Subjects according to Pre-interventional Anxiety (n1=n2=50)

Before Intervention	Experimental Group (n1=50)	Control Group (n2=50)	Total	Chi-test
Anxiety present (≥11)	45 (90%)	42 (84%)	87	X^2=0.795, p>0.05
Anxiety absent (≤11)	5 (10%)	8 (16%)	13	

Table 3.Pre-interventional Combined Anxiety Scale Score (APAIS) among Both Groups (n_1=n_2=50)

Combined Anxiety Scale Score (1+2+3+4)	Mean Value	SD	T-test
Experimental group	15.36	2.89	T=4.90, P<0.05 (significant)
Control group	12.78	2.32	

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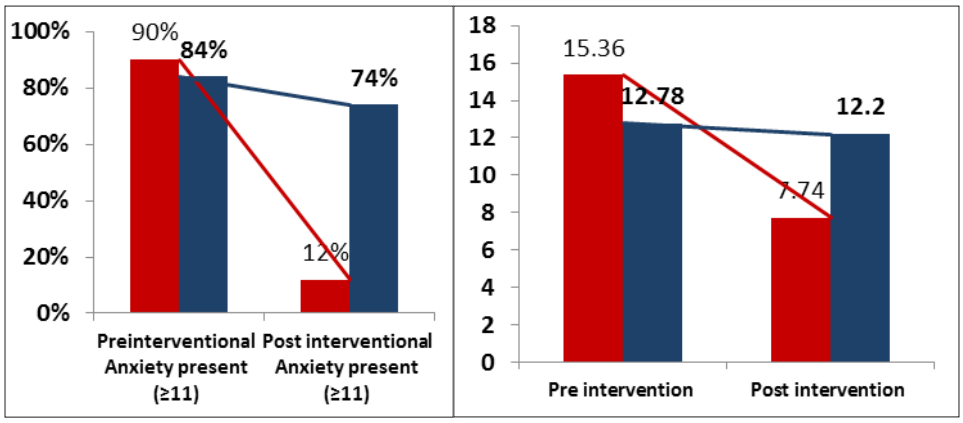
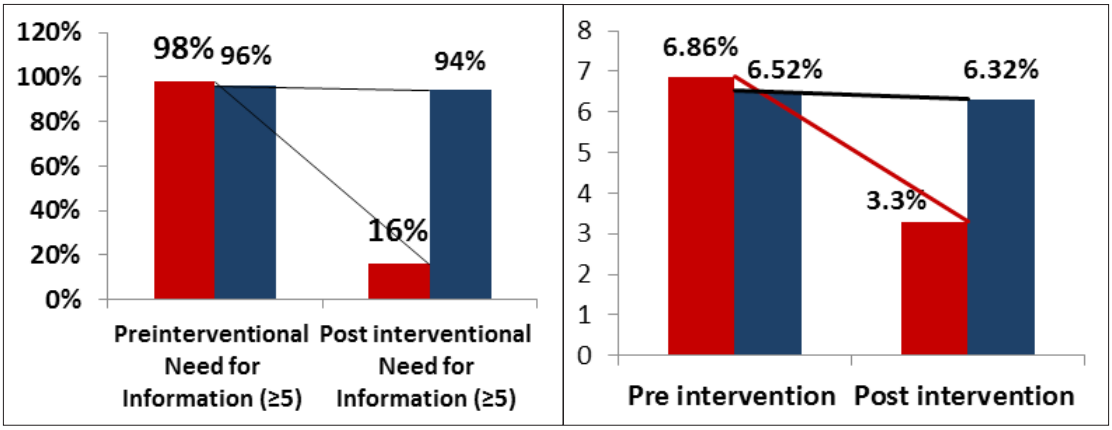


A) Percentage of subjects with ≥11 anxiety score
B) Subject distribution according to mean anxiety score

Figure 2.Pre- and Post-Interventional Comparison of Subject's Anxiety Score in Both the Groups (n1=n2=50)

Figure 3 describes pre- and post-interventional comparison of the patients' needs for information score among study subjects. The figure shows patients still needed more information about surgery and anesthesia after intervention in both the groups, but in psychoneurobics meditation group decline in number of patients with need for information in percent and mean score was more than in control group and this difference was statistically significant (16% vs 94%, combined score 3.3 vs 6.32, p<0.001).



A) Percentage of subjects with ≥5 score
B) Subject distribution according to mean score

Figure 3.Pre- and Post-Interventional Comparison of Subjects with Need for Information Score (n1=n2=50)

Discussion

Anxiety over surgical outcome, anesthesia, pain, and possible complications can induce stress in patients before any type of surgery. So the present study was sought to identify the preoperative anxiety among patients undergoing cataract surgery and effect of psychoneurobics meditation over preoperative anxiety. The prevalence of preoperative anxiety in various studies ranges from 51% to 76.7%. In a study with 79 patients in India, the prevalence of pre-operative anxiety was 45.7%. But Vadhanan et al. found the prevalence 31% taking APAIS anxiety score >10. They found mean combined anxiety score 7.07 which is lower than other reported studies.[5] In the present study, the number of preoperative pre-interventional anxious patients in two groups using APAIS combined anxiety cutoff score ≥11 were 90% and 84% in experimental and control group respectively. It was higher than in other studies, which assessed preoperative anxiety in different types of studies. It may be due to it was assessed two to three hours before cataract operation done under local anesthesia. A similar finding was also reported by Jayasree where all 100% subjects were found varying grades of anxious before cataract surgery.[1] Present study findings are also supported by Kim.[6] Even though cataract surgery with local anesthesia is completed in a relatively shorter time in most cases, patients may be more stressed than those under general anesthesia because they remain conscious during surgery. Ramirez et al.[7] also found in their study that preoperatively, patients had the highest anxiety about

the surgical process and surgical outcomes. However, Foggitt[8] found in his pilot study tool that average cataract patient is not likely to be unduly anxious during the process of cataract surgery under local anesthesia. Thus it can be said that increased anxiety may persist even though the situations really threaten nothing. When it became frightening, patient's symptoms of sympathetic nervous system appear. Anxiety is closer to fear, because the source is apparent in mind.[11] Anxiety can be reduced through meditation by improving psychological well-being, self-confidence, faith in God and facilitating positive experience[3].

In the present study, in experimental group pre-interventional anxiety was 90%, need for information 98%, mean combined anxiety score 15.36 and mean information score was 6.86 which decreased after psychoneurobics meditation to 12%, 16%, 7.74 and 3.3 respectively. But in control group, this decline was from 84% to 74% (anxiety), 96% to 94% (need for information), 12.78 to 12.2 (combined anxiety score) and 6.52 to 6.32 (need for information score) only. This was very low decline. This shows the patients in the control group continued to remain anxious and they had a greater need for information regarding surgery and anesthesia even after counseling. But in experimental group, majority of patients no longer remained anxious after psychoneurobics. Wang et al. also found the score of anxiety in the meditation group was lower than that in the control group (P 0.05). He concluded the meditation can help patients to relieve anxiety and reduce their stress response to surgery.[9] It also can make them better cooperate during surgery and feel more satisfied with operation. Berth et al. support this finding in their study that patients with a higher need-for-information show higher anxiety (r=0.59) prior to surgery.[10] Wulandari et al. mentioned that before the Dhikr intervention, there were seven pregnant women who experienced severe anxiety, but after intervention, they were no longer on the severe classification. Dhikr of Allah is a worship that brings serenity and healing of soul. Thus it is one way of meditation and a regular habit will lead to peace at heart. These results indicate that although there was anxiety in patients in pre-operative phase but, after the act of Dhikr the patient's anxiety decreases.[11] Norred also suggested combining holistic therapies with high-tech surgery can contribute an enhanced care to surgical patients. Recognizing the preoperative anxiety as a common and distressing problem for surgical patients, incorporating skilled holistic interventions can be humane acts of caring for those patients.[12] Scientifically also, it is proven that meditation-induced neurochemical changes produce an anxiolytic effect by increasing parasympathetic activity, GABAnergic drive, serotonin, endorphins, arginine-vasopressin secretion and decreasing noradrenaline, cortisol level.[14] Nowadays, complementary therapies or alternative medicines are used as adjuvant therapy alongside the conventional medical management to enhance overall health and well-being of the patients.[4] Kim found after hand massage, the psychological anxiety levels were significantly less than before.[6] This finding is similar to that described by Virkkila et al. in a study of cataract surgery in which hand massage relieved patients of anxiety without sleep.[13] Jayasree assessed anxiety in cataract patients and found in pre-test out of 20 samples all (100%) were anxious of varying degrees (15% mild, 50% moderate, 35% severe). But after music therapy, majority (65%) had only mild form of anxiety. Thus music therapy reduced the need for pharmacological intervention.[1] Similar results were also reported by Bella et al.[14] and Camara et al.[15] in studies done among cataract patients. Findings of Liu et al. support the hypothesis that mindfulness training significantly enhanced the participants' experience of inner peace, compared with baseline and compared with the control group.[16] Thus it evident that psychoneurobic meditation makes the body, mind and spirit connected. It works by transferring spiritual energy into the body by connecting psyche (mind) to the God, makes one feel calm, quiet, control mind and make their thinking positive. When mind is involved in all these activities, release of neuro-emotional blockages of neuro system occurs which allows the full flow of Pranic energy in the body, thus raising body strength and flexibility. When someone feels spiritually connected to God and fulfilled, his faith in God increases their confidence, decreases the fear, insecurities about procedure and thus their need for information also reduces. Peace in mind and soul makes everything easier to deal with and the person starts feeling lighter and happier.

Conclusion

Psychoneurobics given preoperatively can help patients to relieve anxiety and reduce their stress response to surgery. It reduces preoperative cancellation of surgeries by controlling blood pressure and anxiety level. It also can make them better cooperate during surgery and feel more satisfied with operative procedure.

Limitation of the Study

As cataract surgery is a daycare surgery, so in present study the anxiety was assessed on the day of surgery few hours before. Due to this, anxiety was found higher than in other studies. This was the major limitation. For anxiety assessment, the patients were interviewed in Hindi language, after translating English version of APAIS tool but the Hindi translation was not validated. This was another limitation of the study.

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Conflict of Interest: None

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