

The Effect of Short Yoga Intervention on the Anxiety and Comfort Level of Dental Patients Reporting for Extraction

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Abstract: *The aim of the study was to assess the effect of a short 10-minute yoga intervention on the anxiety and comfort level of the patients reporting for tooth extraction. A, two arm parallel design, experimental study was carried out in the Department of Oral and Maxillofacial surgery. A, total of 34 subjects needing extraction in the age range of 25-50 years were equally divided into study group (yoga + extraction) and control group (extraction only). Yoga intervention included performing deep breathing, OM chanting and Brahmari, followed by relaxation. A self-designed pilot tested and validated 7-item questionnaire was used to assess the anxiety level and comfort level. Visual Analogue scale (VAS) with a range of 0-100 was also used to assess the anxiety level before, during and after extraction. Unpaired 't' test was used to compare the anxiety and comfort levels pre and post extraction at 5% level of significance. In the study group, the post extraction scores for anxiety and comfort level were significantly lower than the pre-extraction scores ($p < 0.05$), but, no significant change was noted in the control group. This study indicates that a short 10- minute yoga session chairside, before extraction procedure can reduce the anxiety levels and increase the comfort levels among the dental patients.*

Key-words: *yoga; dental extraction; anxiety; comfort level*

Introduction

Anxiety and fear towards dental treatment are common problems frequently experienced by patients worldwide (Appukuttan et al., 2013) and they act as a significant barrier to dental treatment (Marya et al., 2012). Among the dental procedures, tooth drilling and local anesthetic injection, are the two most common reasons for anxiety (Marya et al., 2012). Syed et al (2013) in their study has

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concluded that the dental professionals should seek ways to help dentally anxious individuals. For this purpose, many treatment modalities have been suggested, which includes Behaviour modification like systemic desensitization, extinction, positive and negative reinforcement, biofeedback, hypnosis and use of various relevant pharmaceutical agents such as intravenous sedation and inhalation sedation (*Marya et al., 2012*).

Yoga is one of the many different methods for achieving relaxation and studies have reported beneficial effects of yoga on anxiety, stress reduction and general well-being (*Shankarapillai et al., 2012*)

Interaction of the investigators with yoga guru indicated that even a short 10-minute yoga intervention can be helpful for reducing anxiety among the dental patients. This 10-minute session would include: Performing deep breathing, OM chanting and Brahmari, followed by Relaxation. The explanation for including these yogic movements were: During anxiety and fear the person operates in the sympathetic mode (*Woodyard., 2011*) and the respiratory rate increases. Deep breathing lowers the respiratory rate and the person operates in the parasympathetic mode which is more healing and calm. OM chanting and Brahmari pranayam (honeybee sound during expiration) creates vibratory sounds and thus relaxes the body. OM mantra is a brain stabilizer and chanting it for even a short time shows marvelous changes in anxiety reduction (*Gurjar et al., 2009*) Further, relaxation by observing the breathe, leads to a state of tranquility and thus negates anxiety (*Dev., 2013*).

No study has been found in the literature, which has assessed the effect of yoga on the anxiety of the dental patient reporting for tooth extraction. Hence, the aim of this study was to assess the effect of a short 10-minute yoga intervention on the anxiety and comfort level of the patients reporting for tooth extraction.

Material and Methods

It was a two arm, parallel design, experimental study carried out in the Department of Oral and Maxillofacial Surgery, Dr D Y Patil Dental College and Hospital, Pimpri, Pune. Before initiating the study, Scientific committee and Institutional Review Board approval was obtained. A sample size of 34 was selected, with 17 participants in each group. The sample size was calculated using online calculator for sample size calculation (Alpha level at 5%, power=80%, percentage success in control group=10% and percentage success in study group at 50%).

Inclusion criteria: Patient who required extraction of the tooth; conscious and well oriented patient; and patient willing to participate in the study and provide the consent.

Exclusion criteria: Patients already practicing yoga; patient with prior history of traumatic dental experience; hyper-anxious patient; patient with history of systemic disease and history of medication like antihypertensive, sedatives and hypnotics.

A self-designed, pilot tested and validated 7-item questionnaire with responses based on Likert's scale (1=Not at all, 2=somewhat, 3=moderately and 4=very much) was used to assess the anxiety level and comfort level (Graph 1). The final score for anxiety and comfort level was calculated separately by adding the scores obtained for each of the questions. The score range for anxiety was 4-16 and for comfort level it was 3-12. In addition, Visual Analogue scale (VAS) with a range of 0-100 was used to assess the anxiety level before, during and after extraction.

Proforma:


Name: _____

Age: _____ Sex: _____

Visual analogue scale for anxiety:


Pre-extraction:

1. How anxious do you feel now?




Post extraction:

2. How anxious did you feel during the extraction procedure?



2. How anxious do you feel now?



Pre-extraction and Post extraction assessment (Tick one appropriate option)

| | Very much | moderately | Some what | Not at all |
|--|-----------|------------|-----------|------------|
| Anxiety: | | | | |
| 1. I am tense | | | | |
| 2. I am presently worrying over possible misfortune. | | | | |
| 3. I feel frightened | | | | |
| 4. I am jittery | | | | |
| Comfort level: | | | | |
| 1. I feel calm | | | | |
| 2. I feel comfortable | | | | |
| 3. I am relaxed | | | | |

Graph 1. Proforma

Procedure

The recruited subjects were informed about the study and signed an informed consent form. Pre-extraction data was recorded. First, the control group extractions were completed and then the study group was handled. Single dental surgeon performed all the extractions.

Control group: The investigator (SP) verbally counseled the patient to relax and the needed extraction was thus performed. Five minutes after the extraction, the subject refilled the same proforma for obtaining the post-extraction data.

Study group : The subject was made to sit in the dental chair and the investigator (SP) explained him/her about the yoga movements they should perform. Then the subject performed them along with the investigator briefly, to get acquainted. The 10-minutes short yoga intervention thus began with the subject performing it according to the instructions of the investigator. Instructions were as follows: First take a deep breath in and now breath out, it should be slow and as deep as possible. Then take a deep breath in and say OM during expiration, pronunciation on “m” should be long and with lip closed (*Gurjar et al., 2009*). This cycle to be done for 3 minutes. Then for Brahmari, take a breath settle down and notice the state of your mind. Now place your thumb on each tragus, index fingers lightly touching the inner corners of the eyes, middle fingers on the sides of the nose, the ring fingers above lips and the little finger just below the lips. Take a deep breathe in and make bee humming sound in the throat during expiration with lip closed and vibration should be felt within. Notice how the sound waves gently vibrate your tongue, teeth and sinuses. Feel the vibrations in the brain. This cycle should be repeated for the next 3 minutes. Now relax, observe the movements happening in your body, breathe normally and finally rub your palm against each other, place them on the eyes and slowly open your eyes. The relaxation cycle is for 4 minutes. After this yogic session, the subject was ready and underwent the needed extraction. Five minutes after the extraction, the subject refilled the proforma.

The collected data was entered into the computer using Microsoft Excel 2007. The statistical analysis were performed using SPSS statistical package, version 16. Intra-group comparison for anxiety score (VAS) was done by paired “t” test. Inter-group comparison for the anxiety and comfort levels pre and post extraction was done using unpaired ‘t’ test at 5% level of significance.

Results

A total of 34 subjects (aged 25-50 years) participated in the study. During the study, six patients recorded extreme anxiety values in the range of 90-100 (One patient, had uneventful extraction and five other patients were inherently highly anxious) and since these extreme values act as outliers and overestimate the results, they were excluded from statistical analysis. Hence, the total sample size

for the study was 28 subjects. Table 1 depicts the anxiety scores based on VAS for the study and control group. The mean anxiety score at baseline for the study and control group was 27.5 ± 8.93 and 25 ± 11.9 respectively with no statistical difference ($p > 0.05$). During extraction, the control group recorded a score of 63 ± 16.10 which was statistically higher compared to the study group ($p < 0.05$), while post extraction the anxiety levels of the two groups were similar ($p > 0.05$)

Table 1: Anxiety scores based on Visual Analogue scale

| | Study group Mean(sd) | Control group Mean (sd) | T test (P value) |
|------------------------------|---------------------------------|------------------------------------|-------------------------|
| Pre-extraction | 27.5 (8.93) | 25 (11.9) | 0.62 ($P > 0.05$) |
| During extraction | 35 (17.05) | 63 (16.10) | 3.98 ($P < 0.05$)* |
| Post extraction | 19.64 (15.2) | 19.38 (15.4) | 0.45 ($P > 0.05$) |

The pre-extraction and post-extraction anxiety level and comfort level measured using the questionnaire for the study and the control group at an identical time interval are given in Table 2. In the study group the post extraction anxiety scores were significantly lower than the pre-extraction scores ($p < 0.05$). But, for the control group there was no significant change in the anxiety scores ($p > 0.05$). Further, the effect of yoga was found to be significant in increasing the comfort level post extraction in the study group ($p < 0.05$). For the subjects in the control group, there was no change in the comfort level ($p > 0.05$).

Table 2: Mean (sd) of anxiety level and comfort level among study and control group

| Study group | | Pre-extraction Mean(sd) | Post extraction Mean(sd) | T test (p value) |
|----------------------|----------------------|------------------------------------|-------------------------------------|-------------------------|
| | Anxiety Level | | 7.92(1.94) | 4.71(1.63) |
| Comfort level | | 8.35(2.16) | 10.71(1.26) | 3.53($p < 0.05$)* |
| Control group | Anxiety Level | 6.92(1.85) | 6.14(1.61) | 1.19($p > 0.05$) |
| | Comfort level | 8.21(1.25) | 8.28(2.19) | 0.103($p > 0.05$) |

sd-standard deviation, * statistically significant difference

Discussion

Despite the technological advances in dentistry, anxiety about dental treatment and the fear to the pain associated with dentistry remains globally widespread and is considered a major barrier to dental treatment (*Marya et al., 2012*). Highly anxious patients have a greater probability of irregular dental attendance and/ or total avoidance of dental care which can result in, increased caries morbidity and poor oral health (*Hmud and Walsh.,2009*)

In the present study, the two groups were similar at baseline with regards anxiety, but during extraction higher anxiety scores were recorded, significantly superfluous in the control group. Anxious patients are troublesome to the dentist, which can compromise the treatment delivery. Therefore managing anxiety of such patients at individual level is essential .Since, the study group had performed yoga, before undergoing extraction, its beneficial effects were well appreciated during extraction. They had significantly lower scores as compared to the control group (Table1) and post-extraction, the anxiety levels were lower and the comfort levels higher in the study group (Table 2). This study indicates that a short 10- minute yoga session chairside, before extraction procedure can reduce the anxiety levels and increase the comfort levels among the dental patients.

The common practice of yoga nowadays includes mainly physical postures (asana), breathing exercises (pranayama), and meditation (*Katuri et al., 2016*). In the present study, we had chosen the breathing exercises (Brahmari pranayam) and meditation (OM chanting) . Literature supports the beneficial effect of breathing exercises for relaxation and stress reduction (*Shankarapillai et al., 2012; Hainsworth et al.,2005*). Shankarpillai et al. (2012) conducted a randomized controlled study, in which a group of dental students before their first periodontal surgery had performed 60 minute yoga session (breathing exercises). The results indicated that yogic breathing had a significant effect on the reduction of state trait anxiety level and thus has led to stress reduction. Hainsworth et al. (2005) has also recommended that paced breathing leads to relaxation; where patient inhales using deep diaphragmatic breathing, hold for 5 seconds than exhale over 5 seconds.

Moradhvaj (2014) confirms that meditation through Om chanting is simple and it is a common practice to start with OM chant the first time you are introduced to yoga. In his study among 45 male students aged 20 years (BA 2nd year), the results indicated that Om chanting was the best treatment to reduce anxiety level of college students. Also, Dev (2013), showed that Om chanting for a period of 25 days with a definite pattern in the morning reduced the anxiety of adolescents.

A study by Gupta et al (2006), showed a measurable improvement in the anxiety scores within 10 days as the result of an intervention that combined daily practice of asanas, pranayama, relaxation techniques and advise about stress management, diet and other aspects of lifestyle.

This background literature clearly supports Yoga to be an anti-anxiety therapy for the dental patients. Since, there is no previous literature about yoga and anxiety due to dental extraction, comparison has been done with diverse studies.

However, during the study, it was learned that short 10- minute yoga might not be helpful for an inherently hyper- anxious patient and it cannot reduce the hyper anxiety which can arise during uneventful or difficult extraction. Excepting these 2 situations, a short 10- minute yoga has shown positive results in 82% of the cases.

Conclusion

Thus, it can be concluded that a short 10-minute yoga intervention performed chairside can reduce the anxiety and increase the comfort level of the patient reporting for dental extraction.

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