



A Comparative Evaluation of Two Counselling Procedures to Assess Anxiety Levels in Patients Undergoing Oral Biopsy Procedures

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KEYWORDS

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ABSTRACT

Background: Biopsy is an invasive procedure, hence it is generally associated with anxiety and emotional distress. Patient education and counselling regarding the procedure might help in reducing stress. **Aim:** To comparatively evaluate anxiety levels during oral biopsy procedures between two groups of patients counselled with either video counselling or verbal counselling. **Materials & Methods:** 30 patients who consented to undergo oral biopsy were divided into two groups of 15 patients each. Group 1, the control group, was given verbal counselling, Group 2 - study group, was given video counselling. Baseline scores of pulse rate, blood pressure and SpO₂ were taken prior to the procedure. Anxiety levels were evaluated using the 'State-Trait Anxiety Inventory'. After the counselling, pulse rate, blood pressure and SpO₂ were recorded again. Visual Analogue Scale was used to assess pain levels after the procedure. **Results:** The blood pressure, pulse rate and SpO₂ showed a negligible difference between verbal and visual counselling in both groups – pre-counselling and post-counselling. However, a significant difference was seen in blood pressure, pulse rate and SpO₂ between the two groups - the baseline scores and post counselling score.

INTRODUCTION

Anxiety, Oral Biopsy, State-Trait Anxiety Inventory, Video Counselling, Verbal Counselling The examination of tissue taken from a living body to determine the existence, origin, or severity of an illness is known as a 'biopsy.' Patients still view biopsies as intrusive and aggressive procedures.^[2] In particular, oral biopsies frequently cause anxiety prior to the surgery because of erroneous beliefs and assumptions, harm fear, and worries about the condition that the biopsy may reveal. According to a study by Godoy et al, the incidence of anxiety in the general population during oral biopsies is around 40%.^[3] Dental anxiety is characterised by a feeling of losing control and a fear that something terrible may occur during the dental procedure. It might also lead to an incorrect diagnosis

or course of treatment.

It is important to reduce the patient's anxiety as reduced pain tolerance and slower recovery times are two detrimental health effects of elevated anxiety. Such patient fears in reaction to invasive dental procedures can give rise to a particular behaviour that complicates or even impedes surgery, precisely known as 'tomophobia.'^[4] This is of considerable concern, especially when nervous individuals often postpone getting an early diagnosis and mouth biopsies can be essential for identifying potentially fatal illnesses.

There are several ways to reduce anxiety which include pharmacological and non-pharmacological methods.^[5] There are studies that state various methods of reducing anxiety before biopsy procedures. One of the non-pharmacological methods, which suits a dental



office set-up is 'music therapy'. This is a simplified method to incorporate in a hospital or a dental clinic with no possible side effects. My previous study which was testing the effect of music therapy on anxious patients, highlighted that music therapy works significantly well in reducing anxiety.

The above-mentioned study, was a non-pharmacological method which acts on the auditory senses of the patient and reduces their anxiety. In our current study, again non-pharmacologically, we are trying to reduce anxiety by means of visual senses, by giving them video counseling before we perform the biopsy procedure.

We will be evaluating the anxiety levels of the patients on a dental chair, scheduled for an oral biopsy, by counseling them, divided in either of the groups - One group will be given video counseling and the other group will be given verbal counseling.

MATERIALS AND METHODS

This is a case-control analytical study, carried out in the Department of Oral Medicine and Radiology having a sample size of 30 patients.

Inclusion criteria: The patients included were above 18 years of age, and adults requiring an oral biopsy for the confirmatory diagnosis of their disease. The patients who seemed anxious were considered for the study. All types of lesions that were indicated for an oral biopsy were a part of the study including pre-malignant lesions like oral lichen planus, oral submucous fibrosis, and leukoplakia. The fibroblastic lesions indicated for excisional biopsies like traumatic fibroma, pyogenic granuloma, and mucocele were included, as well as oral cancer, fine needle aspiration cytology and laser ablations were included in the study.

Patients who never underwent any type of biopsy procedure were only considered, in order to reduce the experiential bias in the present study by the patients. All types of biopsies were taken in the study including punch biopsy, incisional, excisional, FNACs and laser biopsies. The patient is usually dreading the procedure of surgical biopsy before the actual procedure. In such cases, the type of biopsy will not fall in the interest of the patient. Hence, all types of biopsies were included. The patient was blinded regarding the type of biopsy during the verbal or video counselling.

Exclusion criteria: The patients excluded were the ones who were not consenting to undergo oral biopsy or who were unfit due to medical reasons. The medical reasons could include uncontrolled diabetes, uncontrolled hypertension/hypotension, any

psychosomatic disorder which can cause complications on the dental chair, patients who show any abnormalities during their visual examination in their gait, built, posture, consciousness and patients with mental retardation as they might be unable to elicit the signs of anxiety in a way that the operator can comprehend. Patients with any psychiatric illnesses, any neuro-developmental disorders like attention-deficit/hyperactivity were excluded from the study.

Materials and Method

State Trait Anxiety Inventory form to assess anxiety levels of the patient before starting the procedure, a two-minute forty seconds video for video counselling, blood pressure apparatus, pulse oximeter for recording baseline scores and post-procedure scores and visual analogue scale to assess pain after the procedure if any. The patients who reported to the department of Oral Medicine & Radiology in the span of three months were considered. Thirty patients who were scheduled for an oral biopsy, in the said period were included in the study. They received a consent form to sign, indicating their agreement to participate in the study. The patients were randomly divided into two groups of 15 patients each - Group 1 and Group 2. Two types of counselling techniques were used – verbal counselling and video counselling. Group 1 was the control group which was given verbal counselling, and Group 2, the study group, was given video counselling.

Baseline scores were recorded which include pulse rate of the patient, their blood pressure and SpO₂. Along with the baseline scores, anxiety levels of patients were analysed using 'State-Trait Anxiety Inventory' prior to the procedure.

The State-Trait Anxiety Inventory (STAI)^[14] is a psychological inventory consisting of 40 self-report items on a 4-point Likert scale. The STAI measures two types of anxiety – state anxiety (STAI-Y1) and trait anxiety (STAI-Y2).^[Fig1] This inventory was chosen as the anxiety scales it is able to analyse both the present state of the individual as well as the trait of an individual in relation to anxiety. It can be differentiating between the temporary condition of 'state anxiety' and the more general and long-standing quality of 'trait anxiety.'

The validity and reliability of State Trait Anxiety Inventory was calculated in a study performed in a gynaecology hospital. The results of which stated the following.^[15] In the cognitive interviews the content validity was evaluated to be very good. According to Cronbach's $\alpha = 0.93$, the scale's internal consistency



was very good.^[16]With an intra-class correlation coefficient of 0.80, test-retest reliability was good, and there was little systematic variation in the test-retest results. There was good construct validity.^[16]To the

best of our knowledge, this is STAI's first validation research. The validity and reliability of this STAI version are deemed satisfactory.

Figure 1(A): STAI-Y1

Patient's name: _____ Age: _____ Sex: _____
 Medical history: _____ Tobacco history: _____
 Clinical diagnosis: _____ Type of biopsy: _____

➤ Baseline scores: (before patient education)
 a) Blood pressure: _____
 b) Pulse rate: _____
 c) Saturation of peripheral oxygen (SpO2): _____

➤ Type of Patient education used:
☐ Visual Video Counselling ☐ Verbal Counselling

STATE-TRAIT ANXIETY SCALE STAI Y-1

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then write the number in the blank at the end of the statement that indicates how you feel right now, that is, at this moment. There is no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best

	1 No, Not At All	2 Somewhat	3 Moderately So	4 Very Much So
1. I feel calm	1	2	3	4
2. I feel secure	1	2	3	4
3. I feel tense	1	2	3	4
4. I feel strained	1	2	3	4
5. I feel at ease	1	2	3	4
6. I feel upset	1	2	3	4
7. I am presently worrying over possible misfortunes	1	2	3	4
8. I feel satisfied	1	2	3	4
9. I feel frightened	1	2	3	4
10. I feel comfortable	1	2	3	4
11. I feel self-confident	1	2	3	4
12. I feel nervous	1	2	3	4
13. I feel jittery	1	2	3	4
14. I feel indecisive	1	2	3	4
15. I feel relaxed	1	2	3	4
16. I feel content	1	2	3	4
17. I am worried	1	2	3	4
18. I feel confused	1	2	3	4
19. I feel steady	1	2	3	4
20. I feel pleasant	1	2	3	4

Figure 1(B): STAI-Y2

SELF-EVALUATION QUESTIONNAIRE STAI FORM Y-2

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then write the number in the blank at the end of the statement that indicates how you generally feel. There is no right or wrong answer. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	1 No, Almost Never	2 Sometime	3 Often	4 Almost Always
21. I feel pleasant	1	2	3	4
22. I feel nervous and restless	1	2	3	4
23. I feel satisfied with myself	1	2	3	4
24. I wish I could be as happy as others seem	1	2	3	4
25. I feel like a failure	1	2	3	4
26. I feel rested	1	2	3	4
27. I am calm, cool and collected	1	2	3	4
28. I feel that difficulties are piling up so that I cannot overcome them	1	2	3	4
29. I worry too much over something that really doesn't matter	1	2	3	4
30. I am happy	1	2	3	4
31. I have disturbing thoughts	1	2	3	4
32. I lack self-confidence	1	2	3	4
33. I feel secure	1	2	3	4
34. I make decisions easily	1	2	3	4
35. I feel inadequate	1	2	3	4
36. I feel content	1	2	3	4
37. Some unimportant thoughts run through my mind and bother me	1	2	3	4
38. I take disappointments so keenly that I can't put them off my mind	1	2	3	4
39. I am a steady person	1	2	3	4
40. I get in a state of tension or turmoil as I think over my recent concerns and interest	1	2	3	4

➤ Baseline scores: (after patient education)
 d) Blood pressure: _____
 e) Pulse rate: _____
 f) Saturation of peripheral oxygen (SpO2): _____

Fig. 1(A): STAI-Y1, Fig. 1(B): STAI-Y2, pre and post counselling BP, pulse rate, SpO2

For every patient, independent of the group, above mentioned baseline scores were recorded along with assessment of their state anxiety and trait anxiety using State Trait Anxiety Inventory. Post the baseline records, group 1 was given verbal counselling and group 2 was given video counselling

The patients in Group 1 were informed about the biopsy procedure briefly and they accepted it. Thereafter, they fluently agreed to go ahead with the procedure.

The patients in Group 2 were shown a video as a part of pre-procedural counselling. No verbal communication was done. A two-minute, forty seconds video was shown to all patients in group 2. The video included visuals of how the procedure is performed from the beginning of the procedure till the end, starting from administration of local anaesthesia to the collection of the excised sample.

After the video or verbal counselling was done, the anxiety levels of the patients were assessed again with the help of pulse rate, blood pressure and SpO2. An

additional variable of 'Visual Analogue Scale' was also used to assess pain levels after the procedure.

The patient was then given the post-op instructions and recalled after the biopsy report arrived. Once the appointment is complete, the scores of the anxiety scale were calculated using the 'STAI adults scoring key'

In the STAI scoring key, each question is rated on a 4-point scale (not at all, somewhat, moderately so, very much so). The scoring of STAI was done based on the scoring key that was developed by Charles D. Spielberger.^[6, Fig 2] The scores were given based on each question from the scoring key and were calculated individually for Y1 and Y2. The range of possible scores for form Y of the STAI varies from a minimum score of 20 to a maximum score of 80 on both the STAI-Y1 and STAI-Y2 subscales. STAI scores are commonly classified as "no or low anxiety" (20–37), "moderate anxiety" (38–44), and "high anxiety" (45–80).^[17]



State-Trait Anxiety Inventory for Adults Scoring Key (Form Y-1, Y-2)

Developed by Charles D. Spielberger in collaboration with R.L. Gorsuch, R. Lushene, P.R. Vagg, and G.A. Jacobs

To use this stencil, fold this sheet in half and line up with the appropriate test side, either Form Y-1 or Form Y-2. Simply total the scoring weights shown on the stencil for each response category. For example, for question #1, if the respondent marked 3, then the weight would be 2. Refer to the manual for appropriate normative data.

Form Y-1		Form Y-2	
VERY ANXIOUS 4	MODERATELY ANXIOUS 3	VERY ANXIOUS 4	MODERATELY ANXIOUS 3
1.	4	21.	4
2.	3	22.	1
3.	2	23.	2
4.	1	24.	3
5.	4	25.	4
6.	3	26.	1
7.	2	27.	2
8.	1	28.	3
9.	4	29.	4
10.	3	30.	1
11.	2	31.	2
12.	1	32.	3
13.	4	33.	4
14.	3	34.	1
15.	2	35.	2
16.	1	36.	3
17.	4	37.	4
18.	3	38.	1
19.	2	39.	2
20.	1	40.	3

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STAI-AD Scoring Key
www.mindgarden.com

Figure 2: STAI Adults Scoring Key

Student's T-test was performed for the comparison between pre-counselling scores and post-counsellingscores between the blood pressure - systolic & diastolic, pulse rate and SpO2 before the counselling and after the counselling.

OBSERVATIONS

The STAI aided in gauging the anxiety levels of the patients. It was observed that most patients were 'severely anxious' before the biopsy procedure.^[Fig 3]

The correlation of STAI with gender was calculated. However, the groups were not divided based on the

gender. 20 males and 10 females were randomly selected for the study. The mentioned calculation shows that females are more anxious than males before the biopsy procedure.^[Fig 3] The correlation of STAI with age was also done in order to know the age bracket where the anxiety levels can vary. Thirty individuals above the age of 18 years were selected. The mentioned calculation shows that patients between the age of 20-40 years are the 'most anxious' in relation to the present state. The patients between the age of 20-60 years have a trait of being 'more anxious.'^[Fig 5]

Anxiety Scale	ANXIETY LEVELS	
	Verbal	Verbal
STAI Y1	Mild or None - 01	Mild or None - 0
	Moderate - 01	Moderate - 04
	Severe -13	Severe - 11
STAI Y2	Mild - 01	Mild - 01
	Moderate - 05	Moderate - 07
	Severe - 09	Severe - 09

Fig. 3: General anxiety levels of patients before biopsy

The patients were segregated and arranged in a tabular form based on their anxiety levels. It was noticed that most patients were 'severely anxious'

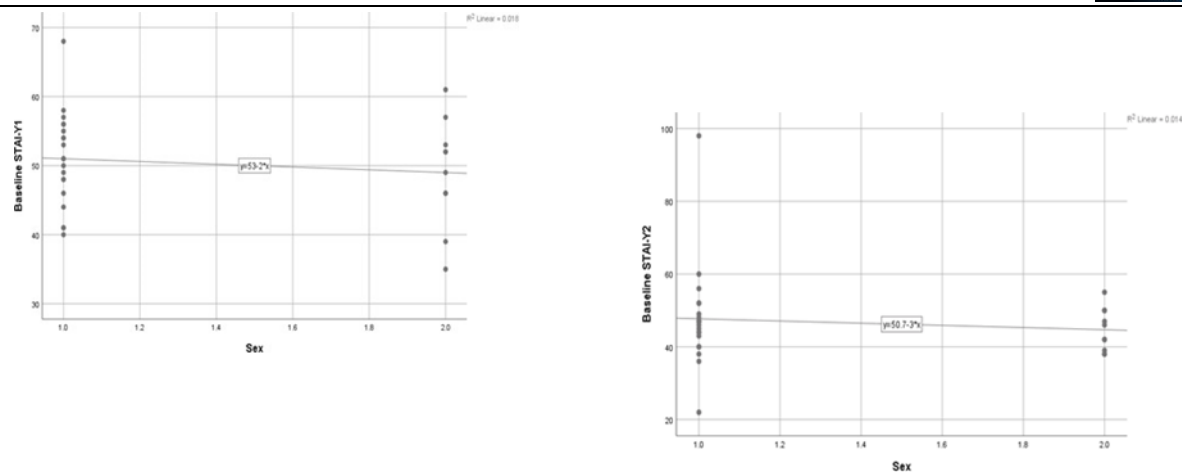


Fig. 4(A): STAI-Y1 vs Gender, Fig. 4(B): STAI-Y2 vs Gender

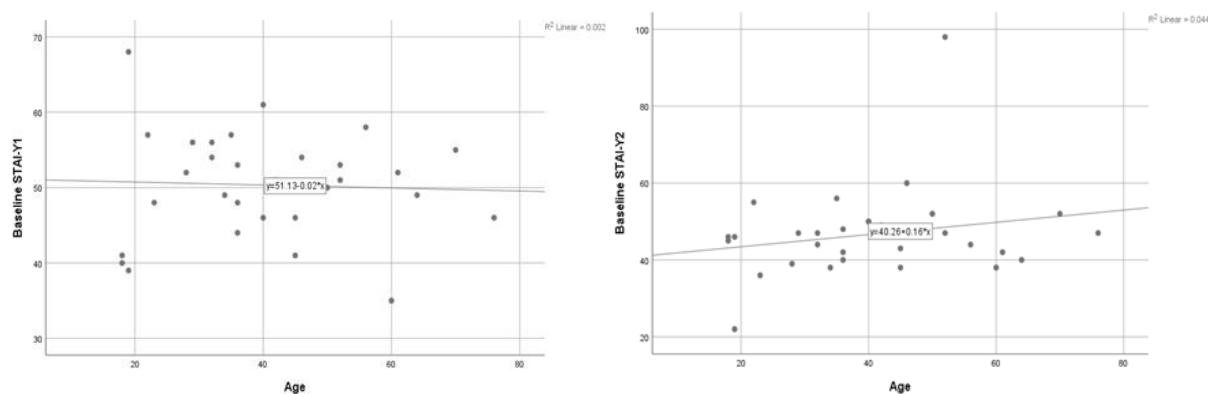


Fig. 5(A): STAI-Y1 vs Age, Fig. 5(B): STAI-Y2 vs Age

RESULTS

Student's T-test was performed for the comparison between pre-counselling scores and post-counselling scores between the blood pressure - systolic & diastolic, pulse rate and SpO₂ before the counselling and after the counselling.^[Fig 6] The P-significance value was calculated. All the P-significance values were more than 0.05, which concluded that the comparison between the pre-counselling scores and the post-counselling scores was insignificant. The graph implies that the type of counselling whether verbal or video, does not make a significant difference. The blood pressure, pulse rate and SpO₂ showed a negligible difference between the type of counselling - whether verbal and visual counselling. However, a significant difference was seen in blood pressure, pulse rate and SpO₂ between the baseline scores and post-counselling scores.

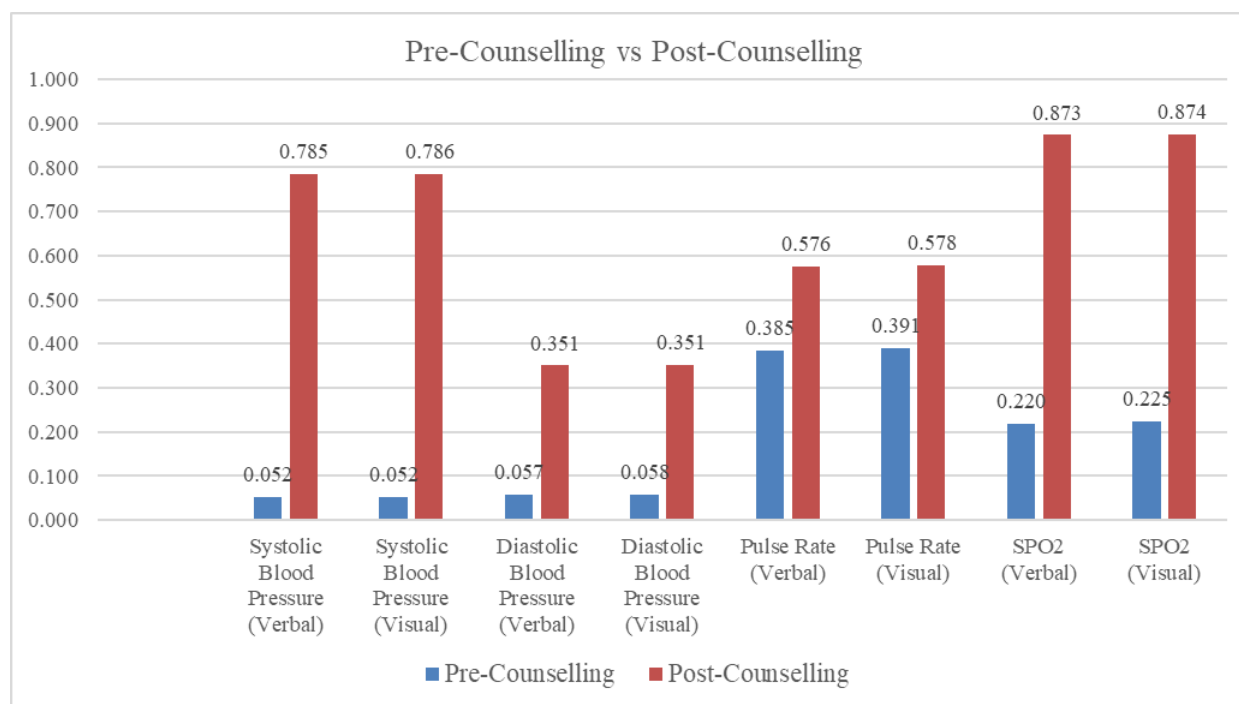


Fig. 6: Comparison between two counselling procedures

DISCUSSION

Anxiety before a surgery or a medical procedure may have unfavourable effects. Research has demonstrated that pre-operative anxiety has an impact on patient satisfaction and can prolong the inpatient stay after the surgery.^[18] Furthermore, anxiousness is employed as a characteristic signal.^[19] For these reasons, further studies on reducing patient anxiety have been initiated.

We have observed that females are more anxious when it comes to getting any intraoral surgical procedures. It has also been observed that younger patients, between the age of 20-40 years and more anxious than the elder individuals.

A correlation is demonstrated between emotional distress prior to biopsy and pain or physical discomfort during the procedure. The increased levels of psychological pain is greatly demonstrated in patients, in cases where anxiety was severe before any surgical procedure, especially intraoral surgical procedures like biopsy.^[7]

To lessen patients' pre-operative anxiety, drug-based therapies have been employed in the past, including the administration of sedatives and anxiolytics before the procedure.

However, such medications when used long-term may have side effects. Hence, non-pharmacological treatments must also be taken into consideration due

to the brief length of the biopsy operation.^[8]

One option, in this regard, is the application of multimedia techniques to enhance patient comprehension of the process, lower preoperative fear, and boost patient satisfaction.^[9,10,11] According to my previous study, patients are indeed anxious before any dental procedure. So, for reducing dental anxiety, music therapy was used in the operatory for anxious patients where in, blood pressure and pulse rate was checked pre-op and post-op. The result suggested that music therapy can be used as an exogenous cue to reduce anxiety in dental operatories.^[12]

According to our current study, patients are anxious before an oral biopsy procedure as well. Hence, another non-pharmacological method was attempted for reducing anxiety.

When the technique is explained to the patient, image-guided biopsies are frequently well tolerated by the patient.^[13]

However, in a dental set-up, change was observed while the video was being played which implied that the patient was starting to get more anxious and impatient. When the patient is already anxious, showing patients the video might increase their anxiety due to visuals of blood, sharp instruments and needles. It has been observed that overexplaining the procedure to the patient has caused a spike in post counselling



levels of anxiety. Patients generally appreciate the operator's ability to speak; and be able to comfort them. The patients are satisfied that all of their inquiries have been addressed. This includes our biopsy patients receiving a call the day before the procedure to confirm their appointment from the dental nurse. Patient briefing regarding the surgical procedure is an important component to minimize patient anxiety. Irrespective of the briefing method used, the most important component is conveying the urgency of biopsy in the situation. In most cases, oral biopsy is crucial in order to have a healthier treatment outcome and to better the prognosis of the lesion. The patient must be psychologically sound and the anxiety must not affect the treatment outcome. Hence, informed decisions must be made by the patient, which comes from informed briefing. However, overexplaining the exact method stepwise might create more anxiety as we noticed in our current study. Ultimately, every patient in the dental chair reacts differently. Their perception of a biopsy procedure could be different from other patients. The clinician is well-trained in knowing the state of the patient when they observe their reactions to various treatment options. Visual and physical interpretation of how comfortable the patient is, is of utmost importance. A patient's comfort on a dental chair must be given a priority always after all.

LIMITATIONS

The patients were not segregated based on the type of biopsies. The sample size was small and there was an unequal ratio of males and females. Furthermore, patient's educational level was not assessed as to how they perceive the word 'biopsy' or how they have researched about the procedure with the help of internet or other sources.

CONCLUSION

Since the type of counselling does not make a significant difference, video counselling is not a necessity during biopsy procedures. In some cases, the anxiety of the patients might increase after seeing visuals of blood and sharp instruments in the video. Basic verbal counselling is more favourable with a limited explanation about the steps of the procedure. However, the procedure must be explained well in detail verbally. The patients' doubts must be answered thoroughly and they must be made comfortable before starting the procedure.

Ethics Committee Approval

The approval was received for this study from the ethical committee of D.Y Patil University, School of Dentistry, Navi Mumbai

(Date: 31st March, IREB Reference Number : IREB/2023/OMR/05)

Informed Consent:-Patients who participated in this study gave their written informed consent.

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