

## Comparative assessment of Quality of Life in patients following third molar surgery receiving reinforced post-operative instructions versus routine verbal instructions

Dr Sarath S S<sup>1</sup>, Dr Ravindran Nair K S<sup>2</sup>, Dr Vidya K G<sup>3</sup>, Dr C R Sobhana<sup>4</sup>,  
Dr Ajith Kumar K<sup>5</sup>, Dr Sandeep Rajan O<sup>6</sup>

<sup>1</sup>(Department of Oral and Maxillofacial Surgery, Government Dental College, Thiruvananthapuram, India)

<sup>2</sup>(Department of Oral and Maxillofacial Surgery, Government Dental College, Manjeri, India)

<sup>3</sup>(Department of Conservative Dentistry and Endodontics, Government Dental College, Calicut, India)

<sup>4</sup>(Department of Oral and maxillofacial surgery Government Dental college Thrissur, India)

<sup>5</sup>(Department of Oral and maxillofacial surgery Government Dental college Thiruvananthapuram, India)

<sup>6</sup>(Department of Oral and maxillofacial surgery Government Dental college Alappuzha)

**Abstract:** The concept of Quality of Life is considered a useful adjunct to concepts of health and functional status. An ideal health assessment, therefore, would include a measure of the person's physical health, a measure of physical, social and psychological functioning, and a measure of quality of life. Such an assessment would cover key physical, psychological, social and spiritual domains of life. In this paper the physical domains of quality of life like "enjoyment of food, mouth opening, speech, sensation of lips and tongue, appearance, pain, level of sickness, interference with daily activities" were assessed using PoSSe scale. We compared the effect of reinforcement of post-operative instructions following third molar surgery with a pamphlet and again through phone on the second day of surgery with a control group to whom routine instructions were given. Reinforcing post-operative instructions was found to be a useful intervention that could easily improve the quality of life (QoL) following 3rd molar surgery.

Date of Submission: 18-03-2020

Date of Acceptance: 03-04-2020

### I. Introduction

The removal of impacted third molars is probably the most common oral surgical procedure after simple tooth extraction. While a great body of evidence exists about the possible signs and symptoms following third molar surgery in terms of pain, swelling, trismus and paresthesia, surprisingly little is known about the consequences of these on a patient's life, and how it affects their day to day life or life quality<sup>1</sup>. Most of the patients are in a tensed state after any surgical procedure and may not be in a mental condition to comprehend the verbal instructions; leading to common post-operative complications including pain and discomfort for a longer period of time which basically affects the physical domains of quality of life. Hence reinforcement of instructions by another way ensures better comprehension of what the surgeon wants post-operatively.

This study is designed to identify the extent of the effectiveness of conventional verbal method of postoperative instructions over the reinforcement of instructions using a pamphlet explaining the instructions and reminder of the instructions over phone in reducing postoperative complications after surgical removal of mandibular 3rd molar. The responsiveness or effect on QoL was assessed using PoSSe scale<sup>2,3</sup> after a period of seven days.

### II. Material And Methods

This interventional comparative study was carried out on patients of Department of Oral and Maxillofacial Surgery at Government Dental College, Thiruvananthapuram, Kerala from January 2013 to December 2013. A total of 150 adult subjects (both male and females) in the age group of 20 to 40 years were included in this study.

**Study Design:** Interventional study

**Reference Population:** Patients who need surgical removal of impacted third molars

**Study Population:** Patients requiring surgical removal of impacted third molars reporting to the Department of Oral and Maxillofacial Surgery at Government Dental College, Thiruvananthapuram.

**Study Location:** This study was conducted in the Department of Oral and Maxillofacial Surgery at Government Dental College, Thiruvananthapuram which is a tertiary health care centre in Kerala.

**Study Duration:** January 2013 to December 2013.

**Sample size:** 150 patients.

**Sample size calculation:** The sample size has been calculated for the present study. The sample size has been calculated using the formula:  $N = \frac{2S^2f(\alpha,\beta)}{d^2}$ , where d – Clinically Significant Difference; S- Standard Deviation; N – Sample Size

With a clinically significant difference of 3%, and an expected standard deviation of 9%, the sample size required for this study was calculated as 144 and a total rounded off to 150 patients.

**Subjects & selection method:**

The study population was drawn from patients who presented to the Dept of Oral and Maxillofacial Surgery at Govt Dental College Thiruvananthapuram who require surgical removal of third molar from January 2013 to December 2013.

**Inclusion criteria:**

1. Patients in the age group of 20-40yrs
2. ASA I & II
3. Those with Pedersen's difficulty index between 3-6 (mild-moderate-difficult)

**Exclusion criteria:**

1. Medically compromised patients
2. Pregnant women
3. Patients with communicable diseases
4. Those patients unwilling to sign informed consent

**Randomisation**

Simple random method using coin toss

**Groups**

Group 1- patients with routine instructions

Group 2-patients with reinforced instructions

**Outcome Measurements**

- 1) PoSSe Scale
- 2) Visual Analogue Scale

**Procedure methodology**

Healthy patients (ASA I or II) aged between 20 to 40 years requiring surgical extraction of one lower third molar were selected and categorized into two groups randomly. At the first appointment the purpose of the intervention was explained, with all its possible complications and the anticipated post-operative course. Patients were asked to sign an informed consent. Phone numbers were procured for proper review. The third molar was removed in due course at a different appointment. All surgical extractions were performed under local anesthesia taking full aseptic precautions. An antibiotic (usually Amoxicillin 50 mg/ kg body weight/ day; if allergic to penicillin Ciprofloxacin 500 mg/ 3 times daily) and a non-steroidal anti-inflammatory drug (Diclofenac Sodium 50 mg 2 times daily) were prescribed along with 0.2% Chlorhexidine gluconate rinses 3 times a day for 7 days. The control group was given the routine verbal instructions following 3rd molar surgery and the study group was given verbal instructions along with that a printed paper having postoperative instructions. The instructions were reinforced over phone on the second day of surgery. After 7 days suture removal was done by the surgeon.

The patients were given a questionnaire to be filled on day 7 after surgery, immediately after suture removal. The questionnaire is designed to evaluate the physical domains of Quality of Life after third molar surgery using **Post-operative Symptom Severity (PoSSe) scale**. It is comprised of different parameters addressing speech, eating ability, taste sensation, appearance, pain, sickness and daily activity. The patients were also provided with a 100-mm visual analogue scale (VAS) with pictorial representation of pain. On day 7, the patient is asked to record the severity on the scale. Patient who did not return the questionnaire were excluded from the study

**Statistical analysis**

Data was analyzed using SPSS version 20 (SPSS Inc., Chicago, IL). The level  $P < 0.05$  was considered as the cutoff value or significance.

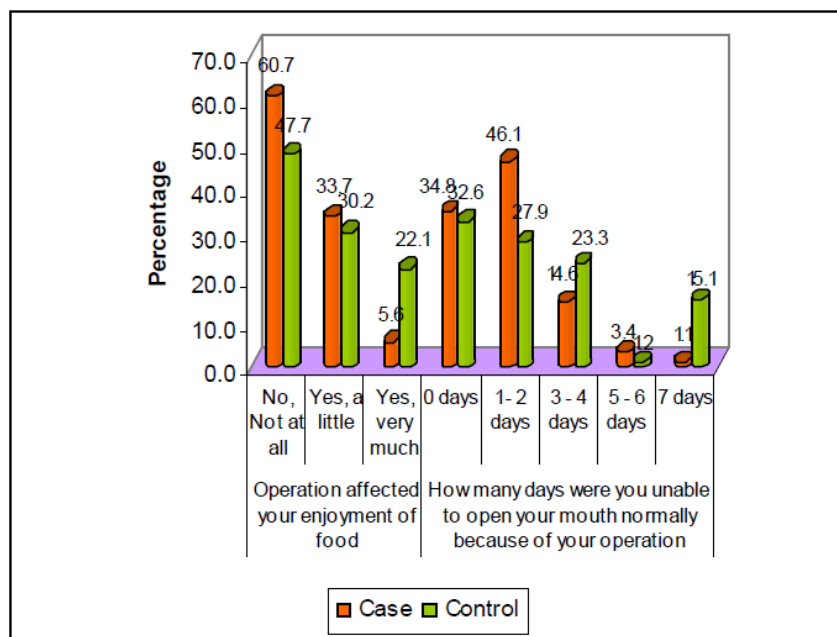
### III. Result

Reinforcements of postoperative instructions have any role in the quality of life of the patients following surgical removal of third molar was explored in the present study. The physical domains quality of life like enjoyment of food, mouth opening, speech, sensation of lips and tongue, appearance, pain, level of sickness, Interference with daily activities were assessed using PoSSe scale.

It is well known that enjoyment of food can have a positive impact on your life. Enjoyment of food was “not at all affected” in 60% of the people in study group compared to the 47% in the control group. Enjoyment of food was a “little affected” in 33% of the study group while it was 30.2% in control group. It was “very much affected” in 5.6% of the case group where it was 22.1% in control group. This shows according to this study “enjoyment of food” is affected more in the control group than in the study group.

Mouth opening was “not at all restricted” in 34.8% of people in study group when compared to 32.6% of people in control group on the first day of surgery. In the “first two days” mouth opening was restricted in 46.1% of people in study group and 27.9% in control group. 23.3% of the people in control group suffered a restricted mouth opening for “3-4 days” when compared to 14.6% in the study group. 3.4% of the people in study group suffered “a restricted mouth opening for 5-6 days” when compared to 1.2% in control. 15.1% of the control group suffered restricted mouth opening “for a week” when compared to the 1.1% in the study group.

Fig.1. Comparison of eating based on group

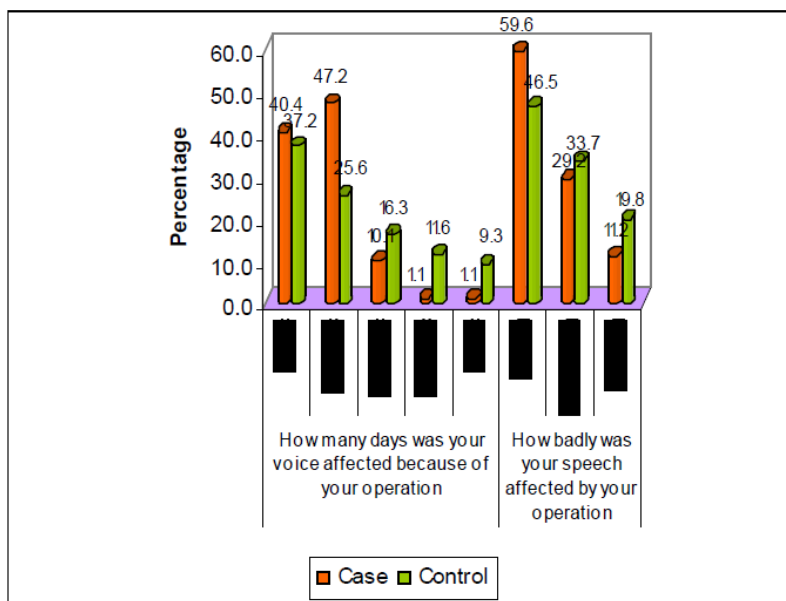


Speech is also showing significant difference between study and control group, with the study group found to be less affected than those in control group. Voice was “not at all affected” in 40.4% of people in the study group when compared to 37.2% of people in control group on the first day. It was

“affected for 1-2 days” in 47.2% and 25.6% of people in study group and control group respectively. 10.1% of the people in control group were “affected” for 3-4 days in control group when compared to 14.6% in the study group. When compared after “5-6 days” 1.1% of the people in study group were “affected” when compared to 11.6% in control. After “a week” 9.3% of the control group and 1.1% in the study group were affected. The operation had “slightly affected” the speech in 59.6% of the people in

study group when compared to 46.5% in the control group. 29.2% of people were “moderately affected” speech in study group when compared to 33.7% in the control group. 11.2% of the people in study group had “badly affected speech” when compared to 19.8% in the control group.

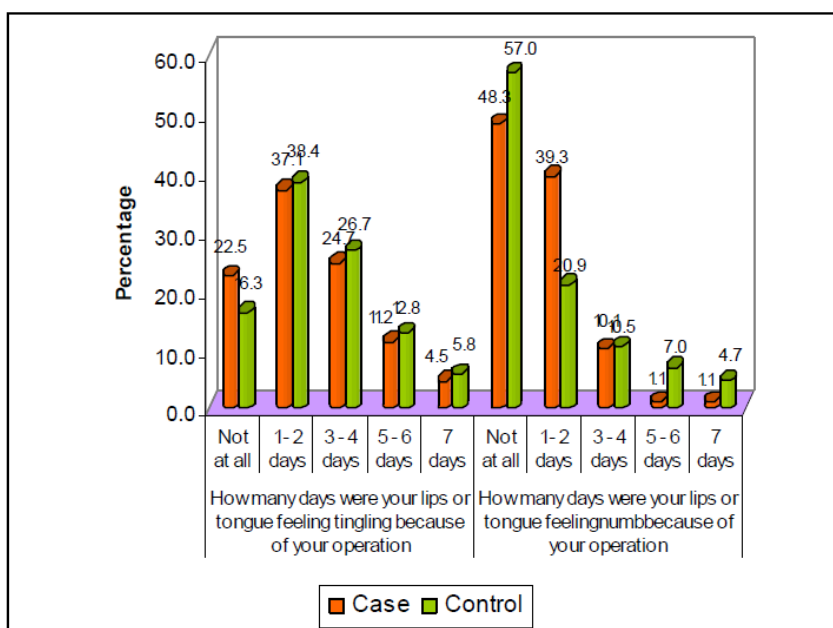
Fig 2. Comparison of speech based on group



The sensation of lips and tongue were found to have no significant difference in this study between case and the control group so is the numbness of tongue and lips. Patient having “no tingling sensation of lips or tongue” was 22.5% compared to 16.3% of people in the control group. For “1-2 days”

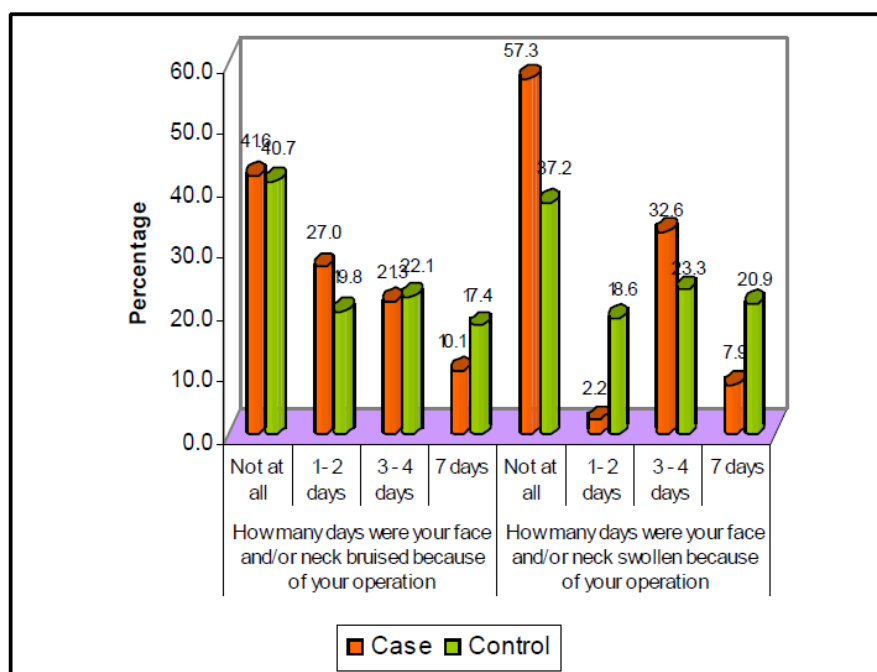
37.1% of people in study group were having “tingling sensation of lips or tongue” where 38.4% in control group. 26.7% of the people in control group had “tingling sensation of lips or tongue for 3-4 days” and 24.7% in the study group. For a period of 5-6 days 11.2% of patients in the study group had “tingling sensation of lips or tongue” where it was 12.8% the control group. After “a week” 5.8% of the control group and 4.7% in the study group had “tingling sensation of lips or tongue”.

Fig 3. Comparison of sensation based on group



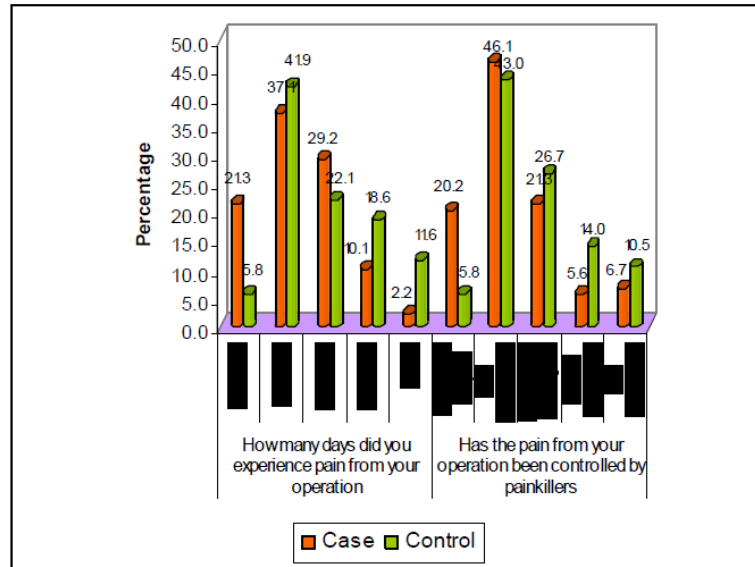
Appearance is assessed by looking for bruising and swelling. It showed significant difference between case and control group, the study group being less affected than the control group. On the first day face and/or neck were “not at all bruised” in 41.6% of people compared to 40.7% of people in the control group. For “1-2 days” 27.0% of people in study group were affected while 19.8% in control group were affected. 22.1% of the people in control group had “bruise for 3-4 days” and 21.3% in the study group. After “a week” 10.1% of the control group and 17.4% in the study group had bruising. On the first day face and/or neck were “not at all swollen” in 57.3% of people when compared to 37.2% of people in control group. After “1-2 days” 2.2% of people in study group and 18.6% in control group were affected. 23.3% of the control group had swelling on “3-4 days” when compared to 32.6% in the study group. Swelling persisted “for a week” in 20.9% of the control group and 7.9% in the study group which is statistically significant.

Fig 4. Comparison of appearance based on group



21.3% of patients in study group had “no pain after surgery” when compared to 5.8% in the control group. For the “first 2 days” 37.1% of people “had pain” in the study group and 41.9% in the control group. 22.1% of the people in control group suffered “pain for 3-4 days” in control group when compared to 29.2% in the study group. 10.1% of the people in study group and 18.6% control group suffered “pain for 5-6 days” while 11.6% of the control group 2.2% in the study group suffered pain for “a week”. 20.2% of patients “had no pain” in study group when compared to 5.8% in the control group. It was “well controlled” in 46.1% of people in study group where it was 43.0% in control group. 26.7% of the people in control group suffered “some discomfort even though pain was controlled” when compared to 21.3% in the study group. 5.6% of the people in study group had “poorly uncontrolled pain” when compared to 14.0% in control group. 10.5% of the control group suffered “uncontrolled pain” when comparing to the 6.7% in the study group.

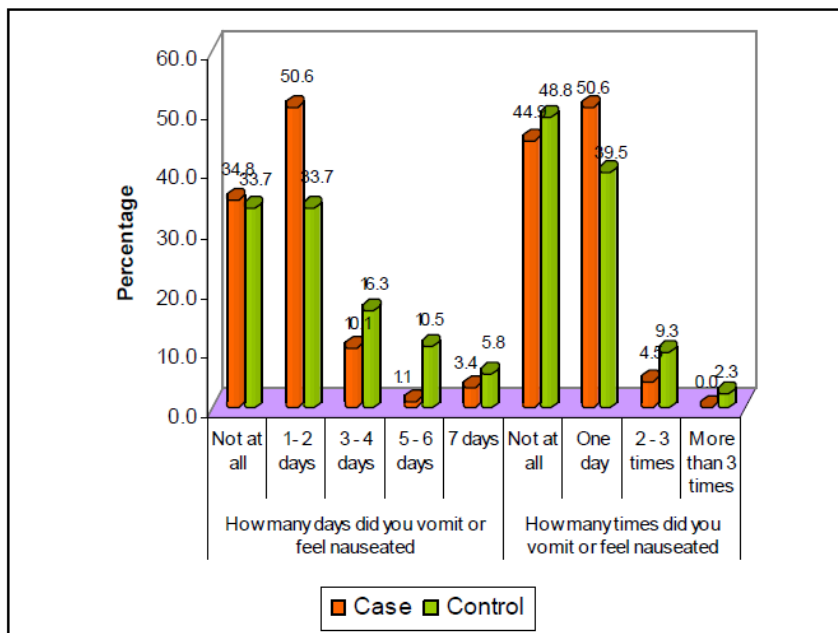
Fig 5. Comparison of pain based on group



The level of sickness in both study and case group are comparable. Patient who are “not at all nauseated or vomited” was 34.8% in study group compared to 33.7% of people in the control group. For “1-2 days” 50.6 % of people in study group were having nausea or vomiting compared to 33.7% in control group. 16.3% of the people in control group “had nausea or vomiting for 3-4 days” and 10.1% in the study group. For a period of “5-6 days” 1.1% of patients in the study group “had nausea or vomiting” where it was 10.5% the control group. After “a week” 3.4 % of the control group and 5.8% in the study group had nausea or vomiting.

44.9% in study group “not at all had any nausea or vomiting” during the period of our study while it was 48.8% in the control group. 50.6% of people in study group had “nausea or vomiting for one day” while it was 39.5% in the control group. 4.5% of the patients in study group had “nausea or vomiting for 2-3 times” while it was 9.3% in the control group. Percentage of patients in study group having “nausea or vomiting more than three times” was zero in study group where it was 2.3% in the control group.

Fig 6. Comparison of sickness based on group



3.9% of patients in study group and 38.4% in the control group could “continue to work after surgery but their work suffered”. On analyzing it was seen that work was affected for “one day” in 20.2% of people in study group whereas it was 30.2% in control group. 19.8% of the people in control group “lost 2-6 working days” in control group when compared to 13.5% in the study group. 12.4% of the people in study group suffered “work loss for a week” when compared to 11.6% in control. Leisure activities were “mildly affected” by the operation by 47.2% in study group as compared to 33.7% in control group. It was “moderately affected” by the operation in 39.3% in study group whereas 50.0% in the control group. Activities were “severely affected” in 13.5% of the patients of the study group when compared to 11.6% in the control group. The operation “prevented any kind of social life” in 4.7% of the control group. Pain “did not affect the life” of 30.3% of the people in study group and 1.2% in the control group. Pain had “slightly affected the life” of 33.7% patients in study group as compared to 38.4% in the control group. In 31.5% of study group “Life was moderately affected by pain” when compared to 50.0% of patients in the control group. Patient’s life was “severely affected” in 4.5% of study group when compared to 10.5% in the control group

Fig 7. Comparison of interference with daily activities based on group

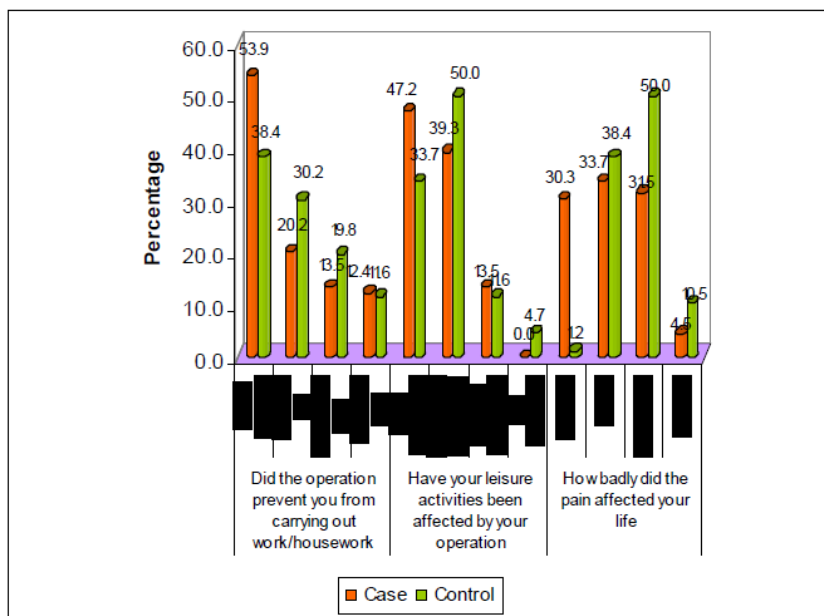
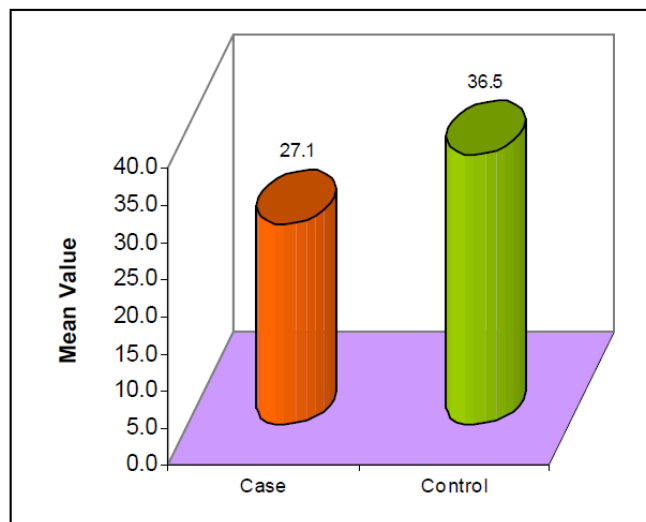
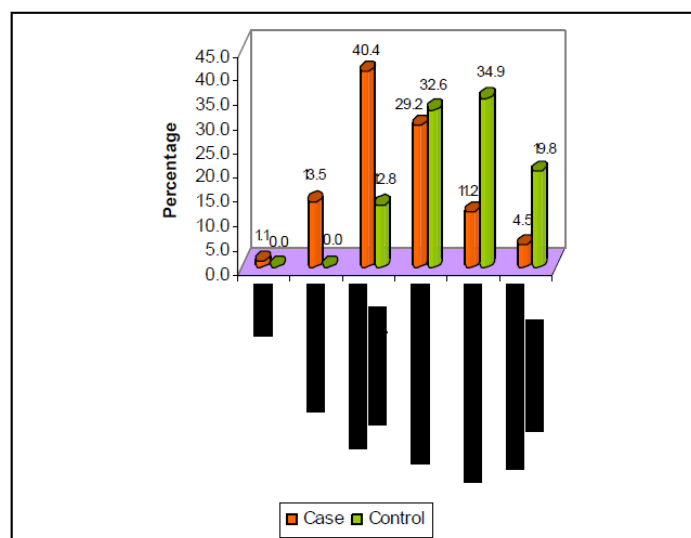


Fig 7. Comparison of total score based on group



When analyzing the visual analogue scale there were one patient “hadno pain” at all from the study group while it all the patients had pain in the control group. Patients with “mild annoying pain” were 13.5% in study group when compared to nil score in the control group. Only 12.8% of the patient in the study group suffered a “nagging, uncomfortable, troublesome pain” while it was 40.4% in the control group. “Distressing miserable pain” in the study group was 29.2 while it was 32.6 in the case group. “Intense, dreadful, horrible pain” was noticed in 11.2% of patient in study group when compared to 34.9% in the control group. “Most unbearable, excruciating pain” was suffered by 4.5% of the study group during 7 days whereas the number increased to 19.8% in the control group.

Fig 8. Comparison of pain based on group



#### IV. Discussion

Mandibular 3rd molar surgery is one of the versatile surgical procedures in oral and maxillofacial surgery. QoL is a multidimensional (bio psychosocial) concept, and the instruments used to measure it are fundamentally based on questionnaires.

Ogden et al<sup>8</sup> designed a questionnaire to assess the effect of third molar surgery which included the “level of physical discomfort, oral and vocal function and patient’s perception of their appearance and social interaction” by collecting data on day 1 and day 7. It was established that there was a compromise in the patients daily activities which was not improved during the first post-operative week.<sup>16</sup> In the present study the physical domains quality of life like “enjoyment of food, mouth opening, speech, sensation of lips and tongue, appearance, pain, level of sickness, Interference with daily activities” were assessed using PoSSe scale.

Ruta et al<sup>3</sup> developed the post-operative symptom severity (PoSSe) scale from questions commonly used in the clinical evaluation of patients who had their third molars extracted. It was divided into subscales equivalent to seven main adverse effects that had been identified. Ninety-seven patients completed the 15-item questionnaire at one week and 71 patients at four weeks, after extraction of impacted third molars. After statistical testing, four items were discarded and the final PoSSe scale achieved a high level of internal reliability.

In the present study we compared the effect of reinforcement of post- op instructions with a pamphlet and again through phone on the second day of surgery with a control group to whom routine instructions were given. This reinforcement of instructions proved to have a positive influence on enjoyment of food, mouth opening, speech, appearance, pain, Interference with daily activities.

Patients following any surgery will be in stressful condition. They will not be in a frame of mind to listen to the postoperative instructions that will be given. In another way it can be said that the stress of the surgery may “distract” the patients from withholding the instructions. Pamphlet given to the study group act as a reference to the patient reducing the load on working memory. Phone call on the second day of surgery is further reinforcing the instructions.



## V. Conclusion

Study included 89 patients in study group where post-operative instructions following 3rd molar surgery was reinforced with a pamphlet and again through phone on the next day of surgery while 86 patients was kept as control where post-operative instructions are given routine verbal means. Study group showed better results than the control group in domains like Eating, Speech, Appearance, Mouth opening, Speech, Leisure activities.

Pain and Swelling, Pain and interference with Daily Activities, Sickness, tingling sensation of lips and tongue have showed no difference between the groups. Post-operative instructions reinforcement was found to be very helpful in better improvement of the physical domains of quality of life according to the study. The ability of the patient to faithfully follow all the postoperative instructions actually studies about the working memory of the patient. The use of the pamphlet and reinforcement of postoperative instructions over phone improved the working memory of the patient and reduce distraction.

## References

- [1]. M. Colorado-Bonnin, E. Valmaseda-Castello, L. Berini-Aytes, C. Gay-Escoda: Quality of life following lower third molar removal. *Int. J. Oral Maxillofac. Surg.* 2006; 35: 343–347.
- [2]. D. A. Ruta, E. Bissias, S. Ogston, G. R. Ogden: Assessing health outcomes after extraction of third molars: the postoperative symptom severity (PoSSE) scale; *British Journal of Oral and Maxillofacial Surgery* (2000) 38, 480–487
- [3]. D. A. Ruta, E. Bissias, S. Ogston, G. R. Ogden. Assessing health outcomes after extraction of third molars: the postoperative symptom severity (PoSSE) scale. *British Journal of Oral and Maxillofacial Surgery* (2000) ; 38(0): 480–487.
- [4]. Wilke RJ, Burke LB, Erickson P. Measuring treatment impact: a review of patient-reported outcomes and other efficacy endpoints in approved product labels. *Control Clin Trials* 2004; 25:535–52.
- [5]. Tschiesner UM, Rogers SN, Harreus U, Berghaus A, Cieza A. Comparison of outcome measures in head and neck cancer—literature review 2000–2006. *Head Neck* 2009; 31(February(2)):251–9 [review].
- [6]. Rogers SN, Ahad SA, Murphy AP. A structured review and thematic analysis of papers published on ‘quality of life’ in head and neck cancer: 2000–2005. *Oral Oncol* 2007; 43(October (9)):843–68 [Epub 2007 June 27. Review].
- [7]. Savin J, Ogden GR. Third molar surgery—a preliminary report on aspects affecting quality of life in the early postoperative period. *Br J Oral Maxillofac Surg* 1997; 35(August (4)):246–53.
- [8]. Ogden GR, Bissias E, Ruta DA, Ogston S. Quality of life following third molar removal: a patient versus professional perspective. *Br Dent J* 1998; 185(October (8)):407–10.
- [9]. Shugars DA, Gentile MA, Ahmad N, Stavropoulos MF, Slade GD, Phillips C, et al. Assessment of oral health-related quality of life before and after third molar surgery. *J Oral Maxillofac Surg* 2006; 64(December (12)):1721–30.
- [10]. McGrath C, Comfort MB, Lo EC, Luo Y. Can third molar surgery improve quality of life? A 6-month cohort study. *J Oral Maxillofac Surg* 2003; 61(July (7)):759–63.
- [11]. Liedholm R, Knutsson K, Lysell L, Rohlin M, Brickley M, Shepherd JP. The outcomes of mandibular third molar removal and non-removal: a study of patients’ preferences using a multi-attribute method. *Acta Odontol Scand* 2000; 58(December (6)):293–8. 12. Primrose AC, Broadfoot E, Diner PA, Molina F, Moos KF, Ayoub AF. Patients’ responses to distraction osteogenesis: a multicentre study. *Int J Oral Maxillofac Surg* 2005; 34(May (3)):238–42.
- [12]. C. McGrath, M. B. Comfort, E. C. M. Lo and Y. Luo. Changes in life quality following third molar surgery — the immediate postoperative period. *British Dental Journal* 2003; (194): 265–268
- [13]. Lopes V, Mumenya R, Feinmann C, et al: Third molar surgery: An audit of the indications for surgery, postoperative complaints and patient satisfaction. *Br J Oral Maxillofac Surg* 33:33, 1995
- [14]. Van Gool AV, Ten Bosch JJ, Boering G: Clinical consequences of complaints and complications after removal of the mandibular third molar. *Int J Oral Surg* 6:29, 1977
- [15]. Berge TI: Inability to work after surgical removal of mandibular third molars. *Acta Odontol Scand* 55:64, 1997
- [16]. Oliveira BH, Nadanovsky P: Psychometric properties of the Brazilian version of the Oral Health Impact Profile-short form. *Community Dent Oral Epidemiol* 33:307, 2005
- [17]. Snyder M, Shugars DA, White RP, Phillips C: Pain medication as an indicator of interference with lifestyle and oral function during recovery after third molar surgery. *J Oral Maxillofac Surg* 63:1130, 2005
- [18]. Earl P: Patients’ anxieties with third molar surgery. *Br J Oral Maxillofac Surg* 32:293, 1994
- [19]. Ogden G R, Bissias E, Ruta D A, Ogston S. Quality of life following third molar removal: a patient versus professional perspective. *Br Dent J* 1998; 185: 407–410.

Dr Sarath S S, et al. “Comparative assessment of Quality of Life in patients following third molar surgery receiving reinforced post-operative instructions versus routine verbal instructions.” *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(4), 2020, pp. 21-29.