



Introduction

Dental anxiety is often closely linked to painful stimuli and increased pain perception, thus these patients experience more pain that lasts longer; it may also exaggerate their memory of pain.

Dental extraction is often cited in the literature as one of the causes of dental anxiety as it is closely linked to painful stimuli.

This being the reason patients tend to prolong the need for treatment and may turn up in the dental clinic when the situation is more severe thus requiring a more exaggerated treatment approach.

Klinik Pergigian Bahau is a primary care dental clinic located in Jempol District of Negeri Sembilan with a monthly 800- 1100 patients, approximately 300-350 dental extraction procedures are performed per dental officer in a month.

34.7% of patient reporting to KP Bahau for toothache are associated with facial cellulitis due to delay in seeking treatment.

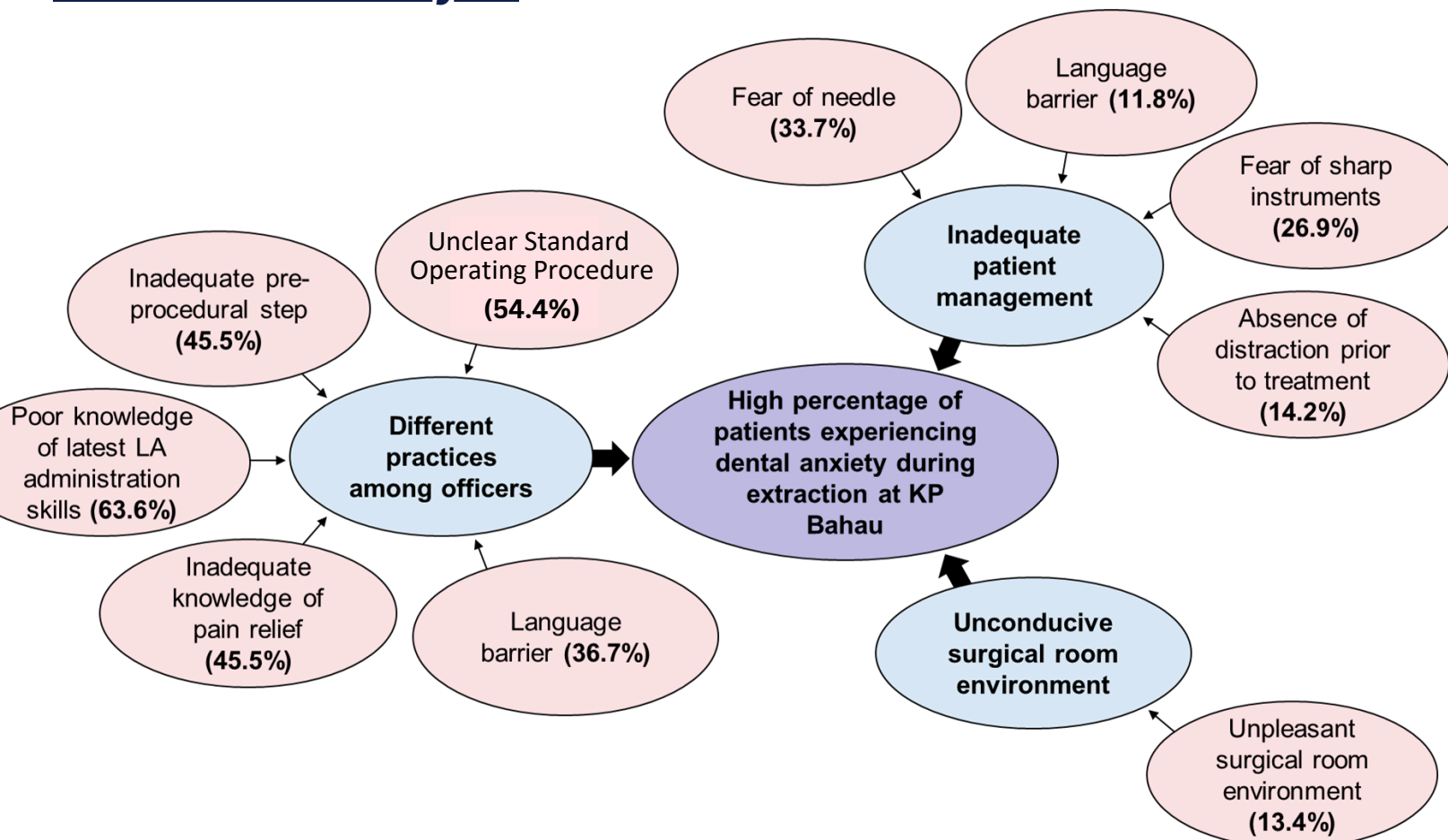
Hence, managing dental anxiety among adult patients requiring dental extraction in Klinik Pergigian Bahau is important to ease the daily workflow.

1.0 Selection of Opportunities

SERIOUSNESS	A survey conducted revealed the percentage of patients experiencing dental anxiety during dental extraction was 54.4% (n=158). Hence, it was included in Pelan Tindakan KP Bahau to achieve <20% of patients experiencing dental anxiety during dental extraction.
MEASURABLE	Data obtained from Modified Dental Anxiety Scale for Dental Extraction Procedure (MDAS-DEP)
APPROPRIATENESS	Dental extraction is a general dental procedure that is conducted in primary dental care facilities. However, patients' fear and anxiety towards this procedure have caused patient to delay treatment until the situation is more chronic
REMIABLE	Remedial action could be implemented to reduce dental anxiety among patient by improving the work process of delivering dental extraction
TIMELINESS	This study can be done with periodic evaluation of every 4 months

2.0 Key Measures of Improvement

Cause Effect Analysis



Problem Statement

PROBLEM	A verification survey was conducted in the month of August 2022 - November 2022 revealed that 54.4% patient were having dental anxiety during extraction procedure.
POSSIBLE CAUSES	Multiple factors include different practices among officers, inadequate patient management and uncondusive surgical room environment.
EFFECTS	The delay in treatment can compromise total patient care.
AIM	To reduce percentage of patients experiencing dental anxiety during dental extraction procedure.

Objectives

General Objective	Reduce the percentage of patients experiencing anxiety during extraction in Klinik Pergigian Bahau
Specific Objective	To determine the percentage of patients experiencing anxiety during extraction in KP Bahau
	To identify causes of dental anxiety among patients visiting primary care facilities
	To formulate and implement appropriate method to reduce the percentage of patients experiencing dental anxiety
	To evaluate the effectiveness of remedial measures that are implemented

Indicators

$$\frac{\text{NO OF PATIENTS WITH A SCORE OF MORE THAN 19}}{\text{NO OF PATIENTS INDICATED FOR EXTRACTION}} \times 100\%$$

Standards: <20%

Literature Review

Extractions are often cited in the literature as one of the causes of dental anxiety that are mainly among adults who show symptoms such as worry, avoidance, and muscle tension, which influence a person's emotional and physical reactions. (Appukuttan, 2016; Craske et al., 2011)

Having a good dentist-patient relationship best explains the management of dental anxiety. A dentist should keep enquiring about discomfort so that they would be able to identify their own working pace with their patient. (Appukuttan, 2016)

3.0 Process of Gathering Information

TYPE OF STUDY	Cross-sectional Study
LOCATION	KP Bahau
STUDY PERIOD	4 monthly evaluation cycle
STUDY TOOLS	LP8 MDAS-DEP Scale Questionnaire
STUDY SAMPLE	Adult patient requiring extraction of teeth

INCLUSION CRITERIA	All adults patients from age 18 and above who require extraction of teeth under local anaesthesia.
EXCLUSION CRITERIA	Patient who are not medically or mentally fit.

Study tools : Modified Dental Anxiety Scale For Dental Extraction Procedure (MDAS-DEP)

Modified Dental Anxiety Scale for Dental Extraction Procedure (MDAS-DEP)

Name :
Age :
Sex :

Can you tell us how anxious you get, if at all, about a dental extraction/removal procedure? Please indicate by ticking (✓) the appropriate box.

- If you were told that one of your teeth had to be extracted, how would you feel?
 Not anxious Slightly anxious Fairly anxious Very anxious Extremely anxious
- If you were about to go to the dentist tomorrow to have your tooth extracted, how would you feel?
 Not anxious Slightly anxious Fairly anxious Very anxious Extremely anxious
- If you were sitting in the waiting room waiting for your dental extraction procedure, how would you feel?
 Not anxious Slightly anxious Fairly anxious Very anxious Extremely anxious
- If you were about to get a local anaesthesia injection in your gum, how would you feel?
 Not anxious Slightly anxious Fairly anxious Very anxious Extremely anxious
- If your third molar was about to be removed through a surgical procedure, how would you feel?
 Not anxious Slightly anxious Fairly anxious Very anxious Extremely anxious

1	Not anxious
2	Slightly anxious
3	Fairly anxious
4	Very anxious
5	Extremely anxious

MDAS-DEP scores consist of not being anxious is equal to a score of 1, slightly anxious is equal to a score of 2, and so on.

The sum of all five questions can range from 5 to 25, with 5 being not anxious and 25 being extremely anxious.

Any score of 19 or higher indicates a highly anxious patient.

4.0 Analysis and Interpretation

Pre-intervention Survey Results based on MDAS-DEP Score (n=158)

54.40% Score less than 19, 45.60% Score more than 19

Factors Causing Dental Anxiety During Extraction Procedure (n=81)

Bar chart showing: Fear of Needles (33.7%), Fear of Sharp Extraction Instruments (26.9%), Absence of Distractions Prior to Extractions (14.2%), Unpleasant Surgical Room Environment (13.4%), Language Barrier (11.8%)

The Most Unpleasant Phase of Extraction (n=81)

Bar chart showing: Pain After Tooth Extraction (Once LA Subsides) (17.4%), During Tooth Extraction (25.2%), During LA Administration (49.8%), While Waiting at Dental Chair Prior to Treatment (7.9%)

Percentage of Dental Officers

Bar chart showing: Unclear Standard Operating Procedure (54.4%), Language Barrier (36.7%), Inadequate Pre-Precedural Steps (45.5%), Inadequate Knowledge of Pain Relieve (45.5%), Poor Knowledge of Latest Local Anaesthesia (LA) Administrations Skills (63.6%)

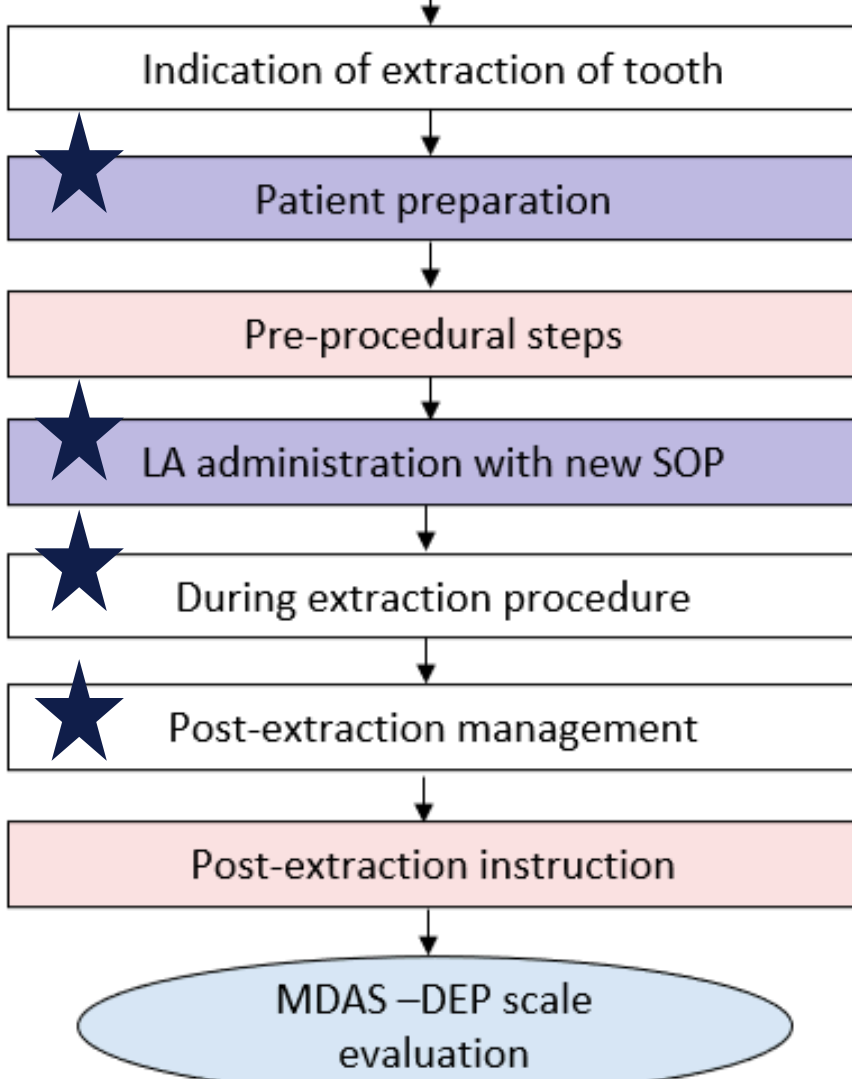
Model of Good Care

NO.	CRITICAL STEP	CRITERIA	STANDARD	RESULT	CYCLE 1 (DEC2022-MAR2023)	CYCLE 2 (APR 2023-JUL2023)	CYCLE 3 (AUG2023-NOV2023)	CYCLE 4 (DEC2023-MAR2024)
1.	Indication of extraction of tooth	Thorough history taking and appropriate investigations done and consent is taken for a following dental procedure.	100%	100%	100%	100%	100%	100%
2.	Patient preparation	Black-out goggles and fidget stress ball given to patient	100%	0%	100%	100%	100%	100%
3.	Pre-procedural step	Application of ice cotton roll on site of injection before local anaesthesia procedure for 60s.	100%	0%	100%	100%	0%	0%
4.	Pre-procedural step	Application of iced-stick on site of injection before local anaesthesia procedure for 60s	100%	0%	0%	0%	100%	100%
5.	LA administration with new SOP	A new standard operating procedures are performed by a dental officer using a short needle ensuring ; - hide-needle technique. - bevel facing bone - Vibration / pressure application on injection side during LA administration - slow injection technique within 15s' estimated by dental officer	100%	0%	100%	100%	100%	100%
6.	During extraction procedure	Dental officer ensures anaesthesia is achieved and extraction is done by talking patient through the procedure and continuous reassurance.	100%	0%	100%	100%	100%	100%
7.	Post-extraction management	Verbal post-extraction management steps are explained by dental officer to patient along with additional gauze and analgesics	100%	100%	100%	100%	100%	100%
8.	Post-extraction instruction	A multilingual post extraction instruction leaflet is given to patient based on language preference for future reference of guardian or patient at home.	100%	0%	0%	100%	100%	100%
9.	MDAS-DEP scale evaluation	The patient is given MDAS-DEP scale to evaluate anxiety level throughout the extraction procedure	<20%	54.4%	30.8%	15.8%	21.2%	16.7%

Improvements Innovation Tools

5.0 Strategy of Change

Process of Care



Cycle 1

- The patient is given blackout goggles and a fidget stress ball with calm background music and an air refresher
- Iced cotton roll placed for 60 sec at site of LA
- Dental assistant practicing discrete instrument arrangement
- Low LA administration performed with vibration of free mucosa
- Dental officer assessing and talking patient through every step throughout extraction.
- Verbal post-operative instructions given to the patient with additional gauze and an analgesic prescription

Cycle 2

- Verbal post-operative instructions given to the patient with additional gauze and an analgesic prescription
- Multilingual post-operative instructions leaflet given to patient after extraction

QR code for Multilingual Post-op Instructions leaflet :

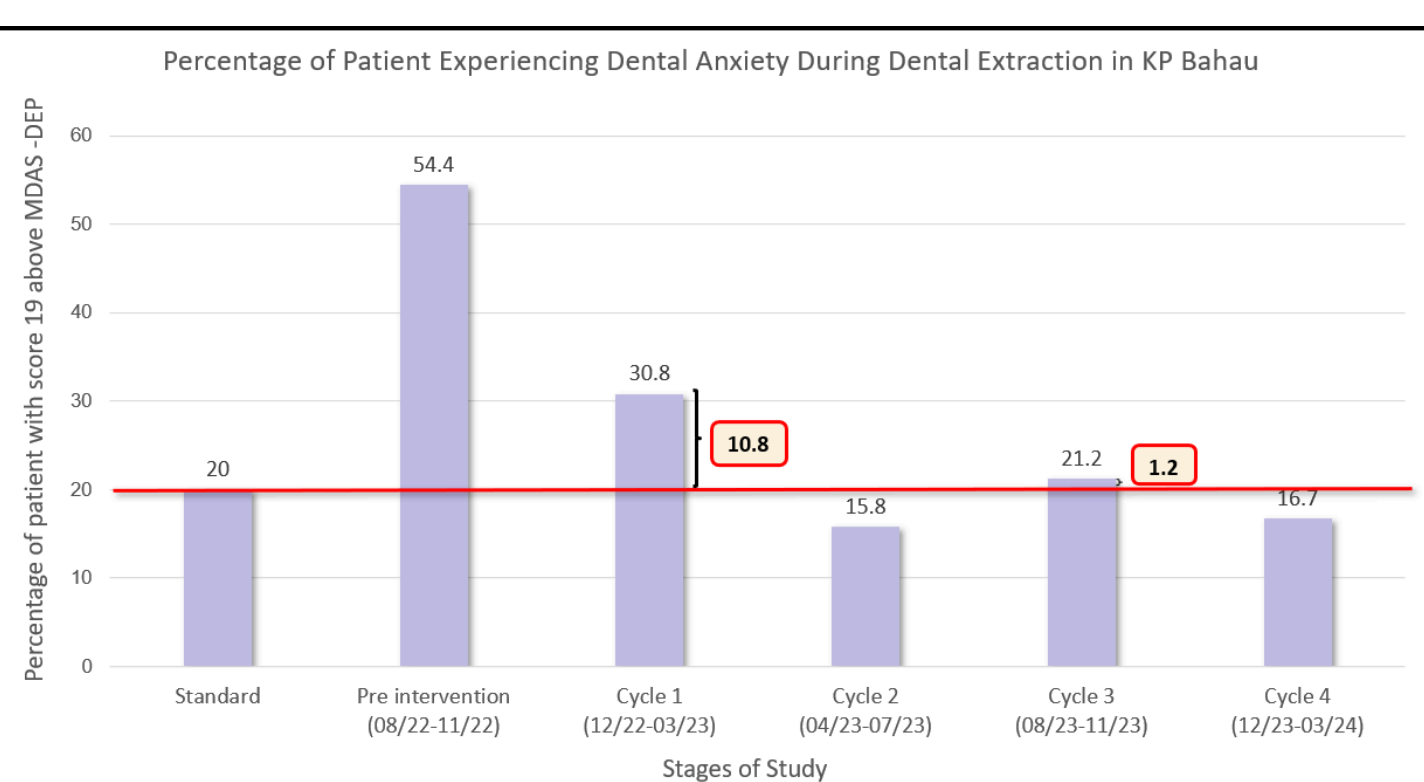
Cycle 3

Ice cotton roll, Iced-stick

Cycle 4

- Audit checklist
- Continous Dental Education

6.0 Effect of Change

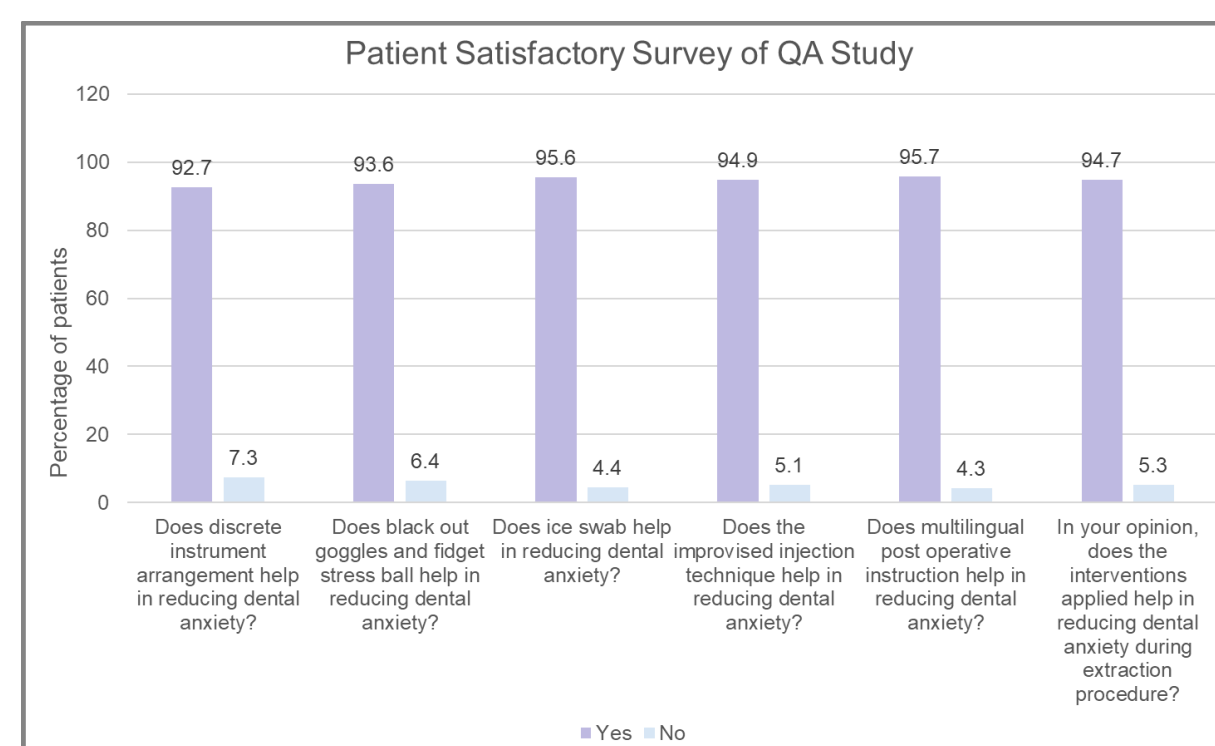


The ABNA has reduced from 54.4% (pre-remedial) to 30.8% after implementation of cycle 1.

We were able to achieve the standard by the end of cycle 2. However, the ABNA increased in cycle 3 to 21.2%.

After further modifications and implementation of interventions, we were able to achieve the standard by the end of cycle 4.

MATERIAL	TOPICAL ANAESTHESIA (PRE-REMEDIAT)	COTTON ROLLS	ICE STICKS
COST	RM 45/BOTTLE	RM 22 (1000pcs)	RM 20/box (100pcs)
MAXIMUM USAGE	65 patients	1000 patients	100 patients
COST PER PATIENT	RM 0.69/patient	RM 0.02/patient	RM 0.20/patient
Save on cost per patient	RM 0.69 - RM 0.02 = RM 0.67	RM 0.69 - RM 0.20 = RM 0.49	
Max save on cost monthly (400 patients)	RM 0.67 x 400 = RM 268	RM 0.49 x 400 = RM 196	



QR code for Patient's Feedback Form:

7.0 Next Step

Strength	1. Remedial actions implemented were proven to be effectively practiced among dental officers even in a busy primary care facility. 2. Patient satisfactory survey shows that majority patients have positive perception on this improvement.
Limitation	1. Difficult in changing some patients' attitude and perception towards dental extraction. 2. Commitment between healthcare professionals is essential to achieve better healthcare.
Next Plan	1. Innovative initiatives is planned to be developed to ease process of replication specifically for developed SOP during LA administration. 2. Aim to develop an operator and patient friendly guideline which can be adapted to state and national level.

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References

- Lakshmanan Lakshmi, Ravindran Vignash. Efficacy of Cryotherapy Application on the Pain Perception during Intraoral Injection: A Randomized Controlled Trial. National Library of Medicine. J Clin Pediatric Dental. 2021 Sept-Oct; 14(5):616-620.
- N. Jayasuriya, I. Weeraperruma, Malagoda Gamage Chathura Kanchana Amarasinghe. The use of an iced cotton bud as an effective pre-cooling method for labial anaesthesia: A technical note. Seminars in Oral and Maxillofacial Surgery. Singapore Dental Journal. 2017 December; 20(1):10-13.
- Tantry Maulina, Salma Nadiyah Ridho, Farah Asmya Putri, Validation of Modified Dental Anxiety Scale for Dental Extraction Procedure (MDAS-DEP). Research Article. The Open Dentistry Journal. 2019, pp 358-363
- Dhanraj Ganapathy, Sivesh Sangar, Hemavathy Murakodas (2021) Fear of dental extraction. International Journal of Dentistry and Oral Science (IJDOS) ISSN: 2377-8075
- QAIQ WORKBOOK- The Problem-solving Approach, 3rd Edition