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內文：

## I. Introduction

- (1) Caries is still a disease that affects the majority of the population, fluoride treatment is the most effective way to prevent both new caries lesions and enamel lesion from further progressing.
- (2) The use of rotating instruments (conventional drill) is the most common method for remove caries, which is efficient and fast and have good prognosis.
- (3) However, there are also disadvantages with drill: risk of overpreparation, the pulp could be affected by vibrations and heat. These negative consequences have been the reason for seeking alternative ways to remove caries.
- (4) For example, air-abrasion, sono-abrasion, chemo-mechanical methods and lasers.
- (5) On the late 1980s, the Erbium: YAG laser was introduces. The combination of water with a pulsed laser beam did not give significant pulp temperature change. Er. YAG Laser ablated carious dentine effectively with minimal thermal damage and removed infected and softened carious dentine to the same extent as the bur treatment.
- (6) 82% of the children felt no pain at all with laser preparation and 92% of the children preferred laser for future caries therapy.
- (7) Research in dentistry has predominantly been quantitative. There were no study about patients experiences and feelings, because the knowledge of patients’ opinion is limited, an interview study could contribute to reducing the gap in knowledge.
- (8) The aim of this study was to obtain, explore and interpret a deeper understanding of patients’ experience and perspective after they have experienced dental caries with laser.

## II. Material and Method

- (1) Study population  
A total of 12 patients aged 15-30 years who had undergone caries excavation with laser. The patients were selected strategically with purpose of obtaining variation in the data.
- (2) Interviews
  - a. Patients were interviewed two weeks or later after treatment with laser. The first interview was performed by a dentist (PG) and the remaining eleven interviews by a dental hygienist (EH).
  - b. The interviewers used a semi-structured interview guide with questions about the informant’s background, experiences associated with laser treatment and thoughts about the future.
  - c. All the interviews were tape recorded and transcribed by a transcription agency.

## (3) Ethical aspects

The location of the interview was chosen by the informants. This meant that the informants could more easily talk about their experience of treatment and the interviewer had an opportunity to get a more correct view of the informants' feelings and experience.

## (4) Analysis

The transcribed text was analyzed using manifest and latent qualitative content analysis. Trustworthiness of the study was expected to be achieved by evaluating the process of sampling and analyzing data. Credibility was reached by choosing interviewees who have own experience of the studied phenomena. Transferability describes the extent to which the results could be transferred to another groups.

## III. Results

The categories in this study were identified as choosing laser, understanding laser, encouraging dental care and my oral health. Subcategories were found in all categories.

Table 1. Subcategories and categories identified during the analysis process

Subcategories	Categories
Initiative Dental fear as a motivating factor Experience of the drill as a motivating factor	Choosing laser
Concrete description Attitude Feeling	Understanding of laser
Response and participation Laser in the future	Encouraging dental care
Fresh and good looking Healthy Own responsibility	My oral health

## (1) Choosing laser

## a. Initiative

The initiative to the laser treatment was often described as having been taken by the dentist. Other participants stated that they asked for laser treatment by themselves.

## b. Dental fear as a motivating factor

The motivating factors for laser treatment were described as dental fear in general, specific fear of needle or discomfort with the drill. Some informants expressed fear for drilling although they had never experienced drilling.

## c. Experience of the drilling as a motivating factor

Several participants had negative previous experiences of drilling. Their descriptions were sometimes detailed, showing exactly what was difficult. Others just had a diffuse, uncomfortable feeling.

## (2) Understanding laser

## a. Concrete description

The description of laser was precise and covered many details such as sound, smell, taste, treatment time, pain, aesthetics, protection and security. During treatment, a burnt, strong and strange smell was experienced. Many of the informants were not disturbed by the sound. Informants who felt that the treatment took a long time thought it was worth it. Some participants experienced the laser treatment as painless.

## b. Attitude

A positive attitude to laser technology was expressed, especially by

those who had tried drilling in the past. Laser treatment was considered to be taken more seriously by the dentist and the technique was more precise.

c. Feeling

The participants described a positive feeling about the laser treatment, and they felt safe and able to relax during the treatment. Most informants declared that they were willing to invest more money or time to get laser treatment.

(3) Encouraging dental care

a. Response and participation

To obtain information about treatment and to have an influence as a patient during treatment were of great importance and had incredibly positive impacts on the overall experience. It was important that the dentist gave a sympathetic impression and care about the patient.

b. Laser in the future

The informants seemed to have a string belief in laser as a future technology.

(4) My oral health

a. Fresh and good looking

Most informants felt that teeth affect one's look greatly. It was very important for self-esteem to have fresh breath and good looking teeth.

b. Healthy

The informants were aware that one's oral health affected one's general health.

c. Own responsibility

The informants seemed to be aware that they themselves could influence their oral health. They were well aware of the need to use fluoride toothpaste, flossing and mouthwash to keep one's teeth healthy.

#### IV. Discussion

- (1) All twelve expressed a positive impression of the laser, the informants considered laser treatment as less painful and safer than conventional drilling.
- (2) Neither of the interviewers was involved in the treatment of the informants. This means that informants were able to talk honestly and openly about the treatment.
- (3) The aim of the study was not to recruit patients with negative experiences of drilling, but it was found that most of the patients who actively chose the laser actually had negative past experiences of drilling.
- (4) Vibration from the drill, drill sound, touch of metal and the need for local anesthesia associated with drilling were the main negative features of the drilling method mentioned in this study. While most of the informants in our study were not disturbed by the laser sound, although it was described by some as scary and noisy.
- (5) Dental fear can come either through direct exposure to a negative experience, associated with dental treatment, or indirectly through exposure to information from others who have had negative dental experiences.
- (6) Several informants in this study felt that they were well informed during the treatment and the dentists gave a sympathetic impression and cared about them. Patients' trust in the dentist is essential to making the patient accept

- and go through with the treatment.
- (7) Previous studies have shown that significantly longer treatment time is required for laser treatment. Surprisingly, most informants in this study experienced laser treatment faster than conventional drilling.
- (8) Our study indicates that laser is not a painless method. The informants' positive attitude to the laser treatment resulted in attempts to explain why it still hurt during laser treatment.
- (9) One explanation for the extensive acceptance of laser treatment in this study could be that the informants had great confidence in both the method and dentist.

題號	題目
1	<p>口腔四大主要流行疾病包括下列何者?</p> <p>(1)齲齒 (2)牙周病 (3) 咬合不正 (4)口腔癌 (5)顳顎關節症候群 (6)顎面外傷</p> <p>(A) (1)(2)(3)(4)</p> <p>(B) (2)(3)(4)(5)</p> <p>(C) (3)(4)(5)(6)</p> <p>(D) (1)(4)(5)(6)</p>
答案(A)	出處：牙科公共衛生學 P.91 第五章
題號	題目
2	<p>關於含氟牙膏在預防齲齒的應用，下列敘述何者正確?</p> <p>(A) 許多先進國家齲齒盛行率降低的主因，應歸功於飲水加氟及含氟牙膏的普及與使用</p> <p>(B) 以使用人數統計，目前是世界排名第二的防齲方法，僅次於飲水加氟政策</p> <p>(C) 含氟牙膏的氟離子濃度加倍，防齲效果也增加一倍</p> <p>(D) 為避免造成氟中毒(fluorosis)，學齡前兒童不宜使用含氟牙膏</p>
答案(A)	出處：牙科公共衛生學 P.237