Disclo-Light: A Low Cost Visual Nudge Tool for Improving Patient Oral Hygiene Adherence

EP013



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INTRODUCTION

Patients often struggle to maintain oral hygiene due to poor brushing techniques, limited understanding of plaque localization, and difficulty in self-assessing their oral hygiene status.Traditional visual aids, such as the Plaque House (Figure 1), present limitations because they are bulky, immobile, and require a dark environment to visualize plaque properly. Disclo-Light was developed to address these issues as an innovative, lightweight, and face-mounted portable device that allows real-time plaque visualization without needing to leave the dental chair.

OBJECTIVE

To evaluate the effectiveness of Disclo-Light as a teaching aid in enhancing patient self-assessment of oral hygiene in government dental clinics in Perak Tengah.

METHODOLOGY

A survey was conducted between May and June 2023 at three government dental clinics (Klinik Pergigian Seri Iskandar, Parit, and Bota Kiri).
Two questionnaires were distributed: one to 21 randomly selected adult patients to assess ease of use and motivation, and one to 8 dental officers to assess ease of use and effectiveness in providing oral health advice.
Gingival Index Score (GIS) assessments were performed on 427 schoolchildren across four schools. Baseline scores from 2023 were compared to follow-up assessments one year later (2024) to evaluate changes in gingival health.

RESULTS

- **User Feedback:** 100% of the 21 patients found Disclo-Light easy to use, effective, and reported increased motivation to practice good oral care.
- **Operator Feedback:** 100% of the 8 dental officers found the device easy to use and unanimously supported its effectiveness as a diagnostic tool.
- **GIS Assessment:** A positive trend in gingival health was observed across all four schools, with a 0.05% to 1.10% increase in the proportion of students achieving a healthy GIS score of O.

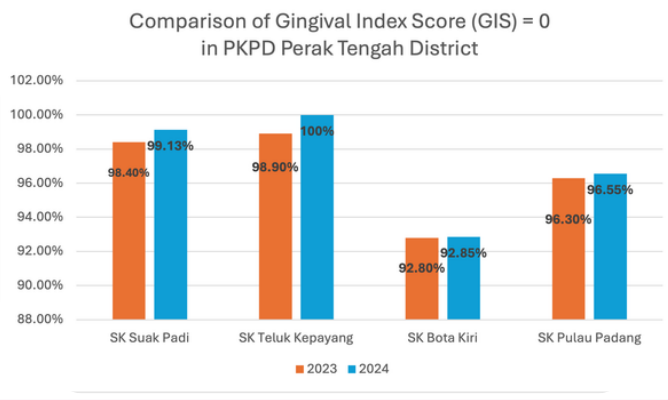




FIGURE 1







DISCUSSION

- Disclo-Light significantly **improved patient engagement** through real-time plaque visualization and enhanced the delivery of personalized oral health advice.
- The device is highly **cost-effective** (priced at RM 40.79 per unit) and its portable, battery-operated design allows for seamless integration into clinics and remote community initiatives.
- **Challenges**: The study's limitations include a small sample size, reliance on subjective patient opinions, localized testing, and potential concerns regarding battery life in areas without charging facilities.
- **Future Recommendations:** Expand the implementation and research to high-need districts and conduct long-term studies with larger sample sizes to evaluate lasting behavioral changes.

CONCLUSION

Disclo-Light successfully met its objectives as an innovative, cost-effective solution for improving oral hygiene awareness. It increases accessibility to oral health education and drives significant improvements in patient motivation and practitioner efficiency.

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