

## ABSTRAK

**Latar belakang:** Plak gigi merupakan masalah utama kesehatan mulut anak yang berdampak pada kualitas hidup. Keterbatasan program kesehatan gigi sekolah mendorong kebutuhan inovasi media edukasi.

**Tujuan:** Mengembangkan dan menguji efektivitas model promosi kesehatan gigi dan mulut berbasis *website* (Premolar) untuk menurunkan indeks plak siswa sekolah dasar (SD).

**Metode penelitian:** Penelitian dengan desain *exploratory sequential mixed-methods*: analisis kebutuhan, pengembangan model, intervensi dan evaluasi. Tahap pertama meliputi wawancara terpisah dengan dinas kesehatan (n=2) dan kepala SD (n=2), serta *focus group discussion* bersama guru (n=13). Tahap kedua mencakup pengembangan materi dan *website*, yang diuji secara konten oleh ahli (n=3) dan usabilitasnya oleh siswa (n=20). Tahap ke-3 melibatkan siswa kelas 3-5 (n intervensi=60; n kontrol=60). Intervensi diberikan 5 kali dalam satu minggu, berlangsung selama 6 minggu dengan durasi 10 menit/sesi. Data diambil pada 3 waktu: sebelum intervensi, setelah intervensi, dan 6 minggu setelah *posttest* dengan *Index Plaque Record O'Leary* dan indikator perilaku. Analisis data menggunakan *thematic analysis* (kualitatif) serta *independent t-test*, *paired t-test*, dan analisis jalur (kuantitatif) dengan integrasi desain, metode, dan interpretasi.

**Hasil:** Terdapat 5 tema yang menjadi dasar Premolar: promosi kesehatan (promkes) yang ada, konsep Premolar, program promkes sekolah, pengelola usaha kesehatan sekolah, serta faktor pendukung dan penghambat. Premolar valid (V-Aiken>0,8), efisien (skor=74), dan memuaskan dalam desain (78) serta pengalaman pengguna (75). Indeks plak kelompok intervensi menurun signifikan dari 71,8 menjadi 55,6 (p=0,000), lalu menurun 57,6; (p=0,515). Sebaliknya, kelompok kontrol mengalami penurunan dari 73,9 ke 41,90 (p=0,001), kemudian 53,07 (p=0,002). *Premolar* berkontribusi signifikan terhadap penurunan indeks plak (p=0,000; koefisien jalur=-0,713), lebih kuat dibandingkan usia dan kelas.

**Kesimpulan:** Premolar efektif menurunkan dan mempertahankan indeks plak siswa SD dalam jangka pendek. Premolar tetap menunjukkan potensi sebagai media edukasi digital yang efektif, terutama jika disertai strategi berkelanjutan.

**Kata Kunci:** Anak sekolah dasar, Plak gigi, Kesehatan gigi dan mulut, Promosi kesehatan, Media edukasi digital.

## ABSTRACT

**Background:** Dental plaque is a major oral health issue in children, affecting their quality of life. Limited school dental health programs highlight the need for innovative educational media.

**Objective:** To develop and test the effectiveness of a web-based oral health promotion model (Premolar) to reduce plaque index among elementary school students.

**Methods:** This exploratory sequential mixed-methods study included three stages: needs assessment, model development, and intervention with evaluation. Stage one involved interviews with health office staff (n=2), school principals (n=2), and a focus group discussion with teachers (n=13). Stage two included developing educational materials and a website, with content validated by experts (n=3) and usability tested by students (n=20). Stage three involved students in grades 3–5 (intervention=60; control=60). The intervention was delivered five times over six weeks (10 minutes/session). Data were collected at three points: before, after, and six weeks post-intervention using O’Leary Plaque Index and behavior indicators. Data analysis used thematic analysis, t-tests, and path analysis with integration across design, methods, and interpretation.

**Results:** Five themes informed the Premolar model: existing health promotion, Premolar concept, school programs, health unit management, and supporting or inhibiting factors. Premolar was valid (Aiken’s  $V > 0.8$ ), efficient (score=74), and rated well in design (78) and user experience (75). The intervention group’s plaque index dropped from 71.8 to 55.6 ( $p=0.000$ ), then slightly rose to 57.6 ( $p=0.515$ ). The control group showed a steady decline from 73.9 to 61.9 ( $p=0.001$ ), then 53.7 ( $p=0.002$ ). Premolar had a significant impact on plaque reduction ( $p=0.000$ ; path coefficient = -0.713), stronger than age or grade.

**Conclusion:** Premolar effectively reduced and maintained plaque index in the short term. Despite greater reduction in the control group. Premolar remains a promising digital education tool.

**Keywords:** Digital educational media, Dental plaque, Elementary school children, Health promotion, Oral health.