Clinical Comparison of Three Manual Toothbrushes with Different Designs

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Abstract

With the advent of differing innovative toothbrush designs and the increasing price attached to it, the study compared toothbrush quality as dictated by cost, comfort and effectiveness in removing plaque. The toothbrushes were chosen according to price and design with the following specifications: Toothbrush A (Php 21.75) had soft, curvy bristles and rubber grip handle, Toothbrush B (Php 76.60) had soft bristles, extra-wide handle with cushions and a flexible neck, Toothbrush C (Php 117.75) had soft, multiple-height bristles with soft, rubber bristles on the sides and rubber grip handle. Using the Turesky Modification of the Quigley-Hein Plaque Index (TQHPI), pre-brush and post-brush indices were taken. Each toothbrush was used twice with participants using the modified Stillman toothbrushing technique. The participants were also blindfolded to eliminate bias during the comfortability assessment of the toothbrush. A questionnaire was used to assess level of comfort provided by each toothbrush every visit. Results from the Analysis of Variance (ANOVA) showed that all toothbrushes had significant reduction from pre-brush baseline. Toothbrush A has the highest mean plaque index score (0.51 ± 0.24) but the difference was found to be statistically insignificant ($p = 0.95$). Comparison of comfort showed participant's preference for Toothbrush C but the differences between the three were statistically insignificant ($p = 0.36$). There is no superior toothbrush among the three as each one is effective in removing plaque and comfortable to use. In contrast to the concept that price is an indicator of quality, results show that an economical toothbrush is as effective in plaque removal as an innovatively designed toothbrush when user follows proper toothbrushing instructions.

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