



## Effects of Visualized Tooth Display and Facial Width on Smile Attractiveness of Thai population

Apichart Veerawattanatigul\*, Pimprae Kasemphakdeepong, Thanapop Kunthawong, Nuttaya Numrakchat, Picharin Sirithianwanichkul, Anchisa Kasantikul, Kwanchanok Eakphaphan

Faculty of Dental Medicine, Rangsit University, Pathum Thani 12000, Thailand

\*Corresponding author, e-mail: dr\_veeapichart@yahoo.com

### Abstract

Nowadays, orthodontic treatment is one of the most viable options for achieving facial esthetic and smile enhancement. Additionally, orthodontic treatment can improve the patient's smile and attractiveness. Therefore, this study aimed to find the most attractive tooth display in relation to facial width and attain the golden ratios between them to increase satisfactory orthodontic treatment results. Using google survey, facial display sets of selected male and female models with five different sizes of buccal corridors (100%, 95%, 90%, 85%, and 80%) in three different facial types (brachyfacial, mesofacial, and dolichofacial) were rated by the subjects. Subjects were 759 Thai observations (368 dental professional and 391 laypeople) whose ages ranging from 20-80 years old from all geographic regions. The results indicated that Brachyfacial females and Brachyfacial males received the lowest rating from laypeople perception while Mesofacial females and Dolichofacial males received the highest rating. Dental professionals also had different perception towards attractive tooth display of different facial types. Mesofacial female and Dolichofacial female are perceived as more esthetic, in contrast with Dolichofacial male. Furthermore, there was a different perception between laypeople and dental professional towards every tooth display type. 95% posed smile width in all facial type was the most attractive in laypeople except Brachyfacial and Dolichofacial female that have the attractive posed smile width between 90-95%. 95% posed smile width in all facial types was the most attractiveness in dental professional except Brachyfacial and Dolichofacial male that have the attractive posed smile width between 90-95%. The facial width did not affect on smile attractiveness in both dental professional and laypeople perception of the smile attractiveness.

**Keywords:** Facial types, Orthodontics, Smile attractiveness, Tooth display

### 1. Introduction

Smile attractiveness in recent year has become a major focus for the public. Orthodontic treatment results can also boost an individual's self-esteem. There are several orthodontic devices that help space closure, improve tooth alignment, correct malocclusion and eliminate improper smile and speech problems. In essence, not only the outer appearance that is linked to self-confidence, but having a beautiful smile also plays a significant role.

Most beautiful and natural smiles are not necessarily symmetrical, uniform in color, or perfect by scientific standards. Consequently, they maintain a natural intrinsic beauty not by the virtue of perfection but rather through the subtle beauty of imperfection. The beauty is in the eye of the beholder (Davis, 2007). For these reasons, smile design guidelines that use a perfect model as a goal may not necessarily render the most beautiful and natural smile that satisfies both the dentist and the patient.

In spite of having perfect teeth alignment, some patients still felt dissatisfied with their smiles. There is no constant ratio between esthetic tooth display and facial width. Because each patient has unique facial structures, the perfect-for-all smile is not suitable to be regarded as a gold standard for the patient. The proper amount of tooth display that corresponds to each patient's facial type could give some guidelines for improving the smile esthetic and could also assist orthodontists in deliberating the treatment plans.

The aim of this study is to find an ideal tooth display in relation to facial width and attain the golden ratios between them in relation to smile attractiveness of the Thai population.

### 2. Material and methods

#### Image manipulation