This study evaluates the validity of Inter alar distance (IAD) and Inner canthal distance (ICD) correlation with Golden Proportion (GP), Golden Mean (GM) and Recurring Esthetic Dental (RED) proportion in predicting Inter canine distance (TTD) and the combined width of central incisors (CIW) to potentially provide a guide for formatting esthetic anterior teeth in edentulous patients.

### Material and Method

A literature search was conducted using PubMed, Medline, Google Scholar, EMBASE, CNKI, Web of Science, and the Cochrane Collaboration, identifying English and non-English articles reporting on Inner alar width, Inner canthal width and Maxillary anterior teeth width. Additional studies were identified by searching reference lists of included articles. Only studies which fulfilled inclusion criteria were included. Using meta-analysis software (RevMan 5.2.11, released 7 April 2014), data extracted from each selected study were statistically combined using the Random-effects model. Weighted mean differences, 95% confidence intervals, and heterogeneity were calculated for each measurement.

### Results

The search strategy resulted in a total of 282 articles. 41 articles fulfilling the inclusion criteria were included in the meta-analysis. IAD were found to be significantly larger than TTD and ICD were found to be significantly smaller than TTD. When predicted central incisors combined width by IAD, both GP and GM predicted value was larger than CIW. Only 70% RED predicted value showed no significant difference from CIW. When predicted central incisors combined width by ICD, GP predicted value was larger than CIW while both GM and 70% RED predicted value was found to be significantly smaller than CIW. Numerical comparison between facial measurement and teeth measurement are presented in the table below.

### Conclusions

By analyzing the data from the literature, the following conclusion may be made:

1. Predicting central incisors combined width using 70% Recurring Esthetic Dental Proportion by Inter alar distance was an accurate method for Maxillary anterior teeth (MAT) width evaluation.

2. The Inter alar distance always larger than Intercanine distance and the Inner canthal distance always smaller than Intercanine distance.

3. Both the Inter alar distance and the Inner canthal distance could not be used directly to predict the Intercanine distance.

4. The Inter alar distance divided by two (according to Golden Mean) always slightly larger than the combination width of central incisors and 50% value of Inner canthal distance shows a reduction of the combination width of central incisors.

5. Golden Proportion was not a reliable method for MAT width evaluation.

### Clinical Implications

Within the limitation of this study, predicting central incisors combined width using 70% Recurring Esthetic Dental Proportion by Inner alar distance may be used as a predictor of Maxillary anterior teeth width evaluation.