



Golden Proportion Assessment as a Guide for the Maxillary Anterior Teeth Replacement

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ABSTRACT:

Background: anterior teeth are related in a mathematical proportion to impart maximum aesthetic look.

Purpose: this study was conducted to evaluate the existence of golden proportion in Kashmiri Population.

Materials and methods: The digital Vernier caliper was used to measure the mesiodistal widths of all maxillary teeth individually of 50 subjects of both sexes with age of 20 – 30 years. 62% width of maxillary central incisor was compared with that of maxillary lateral incisor to canine. The flexible ruler was used to measure the anterior maxillary teeth from the distal of right maxillary canine to that of left maxillary canine. The data collected was analysed statistically and compared with chi square test ($\alpha < 0.05$).

Results: The ratio of 1.2 and 1.3 were more common than 1.618 which is observed in 12% of the samples. The chi square was found to be 2.72 and p-Value of 0.67.

Conclusion: It can be concluded that majority of the Kashmiri population does not possess the golden proportion.

Key words: Golden proportion, aesthetics,

diagnosis of tooth arrangement and in the application of esthetic dental treatment

Aims and objectives: this study was conducted to assess the golden proportion as a guide for replacing anterior teeth with aesthetic restoration.

Materials and methods: The sample size in this study consisted of 50 patients of both sexes with 3:2 ratio and with age ranging from 20-30 years.

Inclusion criteria:

- i. no history of orthodontic treatment,
- ii. no tooth size alteration,
- iii. spacing and restorations
- iv. no crowding
- v. natural maxillary dentition

Exclusion criteria:

- i. any missing maxillary anterior tooth
- ii. fixed prosthesis in the maxillary anterior region
- iii. crowding
- iv. spacing

The flexible ruler was used to measure the maxillary anterior teeth from the distal contact of right maxillary canine to that of the left maxillary canine. The digital Vernier caliper was used to measure the mesiodistal widths of right and left central incisor, lateral incisor and canine.

In each subject, the golden proportion was measured by multiplying the width of the larger component by 62% and compared the width of the smaller component for proportion to be analyzed. The width of central incisor was multiplied by 62% and compared with the width of the adjacent lateral incisor

Similarly the width of the maxillary lateral incisor and canine were evaluated for golden proportion. The measurements were recorded and statistically analyzed.

II. RESULTS:

Data collected was analyzed statistically. The frequency of participants having various ratios of golden proportions based on sex was calculated as shown in table no. 1. Chi square analysis was used

I. INTRODUCTION:

The successive widths of the anterior teeth are related to a mathematical proportion to create artistic, esthetic and attractive smile. It was Lombardi who suggested the application of golden proportion in dentistry. He advocated golden proportion for determining the anterior tooth size. The ratio of widths of lateral to central incisor and canine to lateral incisor is repeated in dental esthetics. Levin suggested that lateral incisor should be in golden proportion with central incisor and canine with lateral incisor for creating aesthetic smile. The golden proportion (1.618: 1.0) is a mathematically constant ratio that defines the dimensions between larger and a smaller length. It is also a valuable tool for the evaluation of symmetry, dominance, and proportion in the



to find if any association exists between sexes and various ratios of golden proportions. Alpha error was set at 5% and P value less than 0.05 was considered statistically significant. The ratio of 1.2

and 1.3 were more common than 1.618 which is observed in 12% of the samples. The chi square was found to be 2.72 and p-Value of 0.67.

Ratio	males	females	Total
1.1	1(3.3%)	1(5%)	2(4%)
1.2	20(66%)	10(50%)	30(60%)
1.3	7(23.1%)	5(25%)	12(24%)
1.6	2(6.6%)	4(20%)	6(12%)
N	30	20	50

Table no. 1 Frequency and percentage in this study

III. DISCUSSION:

Many researchers are in support and refute of the application of golden proportion in the aesthetic dentistry. George and Bhat stated that the golden proportion is reliable predictors for determining the width of the maxillary central incisors in the south Indian population. Preston found 17% of his study samples had golden proportion between the width of the maxillary central and lateral incisors.

Ward, Gillen et al and Rosenstiel et al supported the Mahshid et al who opined that the golden proportion did not exist between the widths of the maxillary anterior teeth.

In the present study, there exists golden proportion in only 12% of the sample size. 60% of the study sample shows the successive teeth width ratio of 1.2. 1.3 ratio exists in 24% of the study sample.

Conclusion: It can be concluded that majority of the Kashmiri population does not possess the golden proportion.

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