

# Distribution of the Mandibular Incisor-Mandibular Plane Angle in Nubian Schoolchildren

JAMES E. HARRIS, CHARLES J. KOWALSKI, and SUSAN J. WALKER

Department of Orthodontics and Dental Research Institute, University of Michigan, Ann Arbor, Michigan 48104, USA

In an earlier paper (*J Dent Res* 50: 984, 1971) we reported on the distribution of the mandibular incisor-mandibular plane angle by age and sex in a large sample of normal American Caucasian schoolchildren. We found no evidence of sexual dimorphism or of a significant trend with age, and the overall mean value of this measurement was of the order of 97°, ranging from 90° to approximately 120°. Our findings differed substantially from those, based on smaller sample sizes, of Downs (*Am J Orthodont* 34: 812, 1948), Margolis (*Am J Orthodont* 29: 571, 1943), Noyes, Rushing, and Sims (*Angle Orthodont* 13: 60, 1943) and Speidel and Stoner (*Am J Orthodont* 35: 536, 1944) who agreed on a mean value of near 90° and a range of variation from, roughly, 82° to 98°; but this difference was attributed primarily to the extent of the discrepancy between the sampled populations, namely, children having normal and excellent occlusions, respectively. However, it also was recognized that any norm or "ideal" value for this measurement might have to be modified by factors other than age, sex, and occlusal pattern, for example, race, the values of other dentofacial measurements, and individual variations within these and other groupings.

We investigated a potential racial difference; we studied the distribution of this measurement in a sample of Nubian schoolchildren, from 6 to 18 years of age, collected as part of our study

of the craniofacial morphology of ancient and modern Nubians (*Am J Orthodont* 58: 578, 1970).

The descriptive statistics for the distribution of the mandibular incisor-mandibular plane angle by age and sex in the Nubian sample are given in the table. The *P* values for *t* tests comparing the observed male and female mean values indicate that there is no evidence of sexual dimorphism and no consistent developmental pattern; this suggests that we may pool the sample by sex and age and obtain an overall mean value of the order of 95° and a range of variation from 82° to 110°. It is clear that while a considerable overlap of these distributions exists, the distribution for the Nubian schoolchildren lies somewhere in between those found for this measurement by Downs et al (82° to 120°) and those of our earlier study of American Caucasian schoolchildren (90° to 120°). Thus, although a comparison with Caucasian standards computed from children having excellent occlusions reveals a higher degree of bi-maxillary protrusion among the Nubians, the difference between these groups is less than that exhibited within the Caucasian samples. Thus the observed racial difference is less than that which exists between children of the same race having normal and excellent occlusions. Note, however, that racial differences are a multivariate phenomenon (KOWALSKI, *Am J Phys Anthropol* 36: 119, 1972), reflected primarily in differing combinations of dentofacial measurements, which may have to be considered to adequately characterize and distinguish between these groups.

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DISTRIBUTION OF THE MANDIBULAR INCISOR-MANDIBULAR PLANE ANGLE IN A SAMPLE OF NUBIAN SCHOOLCHILDREN

Age	Males				Females				P
	N	Mean	SD	Range	N	Mean	SD	Range	
6-7	22	92.80	4.58	83.5-102.0	22	92.05	4.98	81.5-101.5	0.61
8-9	21	95.64	4.66	85.5-103.0	8	96.19	5.28	89.5-105.0	0.79
10-11	33	94.88	5.41	81.5-107.0	18	94.36	6.84	79.0-108.5	0.77
12-13	23	97.63	5.32	88.0-107.5	18	95.33	4.09	88.0-103.5	0.13
14-15	36	97.69	6.77	83.5-110.0	21	95.67	4.67	86.5-103.0	0.22
16-17	24	94.86	5.06	84.5-103.0	18	92.86	6.63	83.0-104.5	0.35

Note: SD, standard deviation. P, P value for *t* test comparing males and females.