CHAPTER I

INTRODUCTION

PRINCIPLES, THEORIES, RATIONALES, AND / OR HYPOTHESES

The cephalometric analysis could be an aid in the diagnosis and treatment planning of skeletal and dental problems. The mean anteroposterior dimensions and vertical dimensions for the lateral cephalograms of Thai people had quite well developed comparative data by Suchato and Chaiwat, 1984; Chatkupt *et al.*, 1987; Sorathesn, 1988; Jotikasthira, 1989; Chareonvicha, 1992; Dechkunakorn *et al.*, 1994; Patanaporn, 1996; Swasdi-ampairaks, 1997; Chaiworawitkul, 1998; Triwattanawong, 2001. Most of previous studies had been studied about normal occlusion samples, some of them studied of class II malocclusion and class III malocclusion. Currently, some studies had been investigated in the Northern Thai samples with normal occlusion or ideal occlusion by Chatkupt *et al.* (1987), Jotikasthira (1989), Patanaporn (1996), Chaiworawitkul (1998). Only one report by Swasdi-ampairaks (1997) studied about anterior openbite and one report studied about anterior deepbite by Triwattanawong (2001). From the past to present, especially in the Northern Thais, no cephalometric study of class III malocclusion samples has been reported.

Furthermore, the size and shape of the dental arches would have considerable implications in orthodontic diagnosis and treatment planning, affecting the space available, dental esthetics, and stability of the dentition.

Epidemiological surveys suggested that class III malocclusion were found in Caucasians approximately 3-5% (Battagel, 1993; El-Mangoury, 1990; Proffit, 1999), while found the most prevalent in Oriental populations approximately 2-12% (Lew, 1993; Proffit, 1999; Tahmina *et al.*, 2000). Suchato and Chaiwat (1981) found that the prevalence of Angle's class III malocclusion among Thai adults was 15.84%.

The aims of this study were to determine the craniofacial morphology of the skeletal, the dental and the facial soft tissue components in Thai adults with class III malocclusion, and to compare it with those with normal occlusion.

THE OBJECTIVES OF THE STUDY

1. To determine the craniofacial morphology of the skeletal, the dental and the facial soft tissue components in Thai adults with class III malocclusion and those with normal occlusion.

2. To compare the craniofacial morphology of the skeletal, the dental and the facial soft tissue components between Thai adults with class III malocclusion and those with normal occlusion.

3. To compare the craniofacial morphology of the skeletal, the dental and the facial soft tissue components between Thai adults with class III malocclusion and those with normal occlusion by gender.

4. To compare the craniofacial morphology of the skeletal, the dental and the facial soft tissue components among Thai adults with skeletal normal overbite, skeletal deepbite and skeletal openbite in class III malocclusion group.

THE HYPOTHESES

The null hypotheses (Ho) are:

1. There are no statistically significant differences between craniofacial measurements of Thai adults with class III malocclusion and those with normal occlusion.

2. There are no interaction effects for any craniofacial measurements in Thai adults with class III malocclusion and normal occlusion samples by gender.

3. There are no statistically significant differences among craniofacial measurements of Thai adults with skeletal normal overbite, skeletal deepbite and skeletal openbite in class III malocclusion group.

ANTICIPATED BENEFITS

    1. To aid orthodontists in differential diagnosis and treatment planning of class III malocclusion patients.

    2. To apply for prevention and clinical correction of class III malocclusion patients.

    3. To be a scientific basic knowledge of class III malocclusion for further study.

SCOPE OF THE STUDY

    This cross sectional study (case-control type) would be conducted to determine study models and lateral cephalograms of class III malocclusion compared to normal occlusion of Thai adult samples. The model analyses were limited to dental part in anteroposterior and transverse dimensions. The lateral cephalometric measurements were limited to skeletal, dental and facial soft tissue parts in anteroposterior and vertical dimensions.

DEFINITIONS

Adult

    : person who passed adolescent growth spurt which had growth changes less than 0.2% per year; at least 16 and 15 years of age for male and female respectively (Nabangxang, 1978; Chatkupt et al., 1987).

Age

    : refer to chronological age.

Normal occlusion

    : an good occlusion, with no or slightly crowding, good or pleasing soft tissue profile, no increased overjet or overbite, no proximal caries or fillings.

Class III malocclusion

    : refer to the dental class III incisor and molar relationships and the skeletal class III pattern.
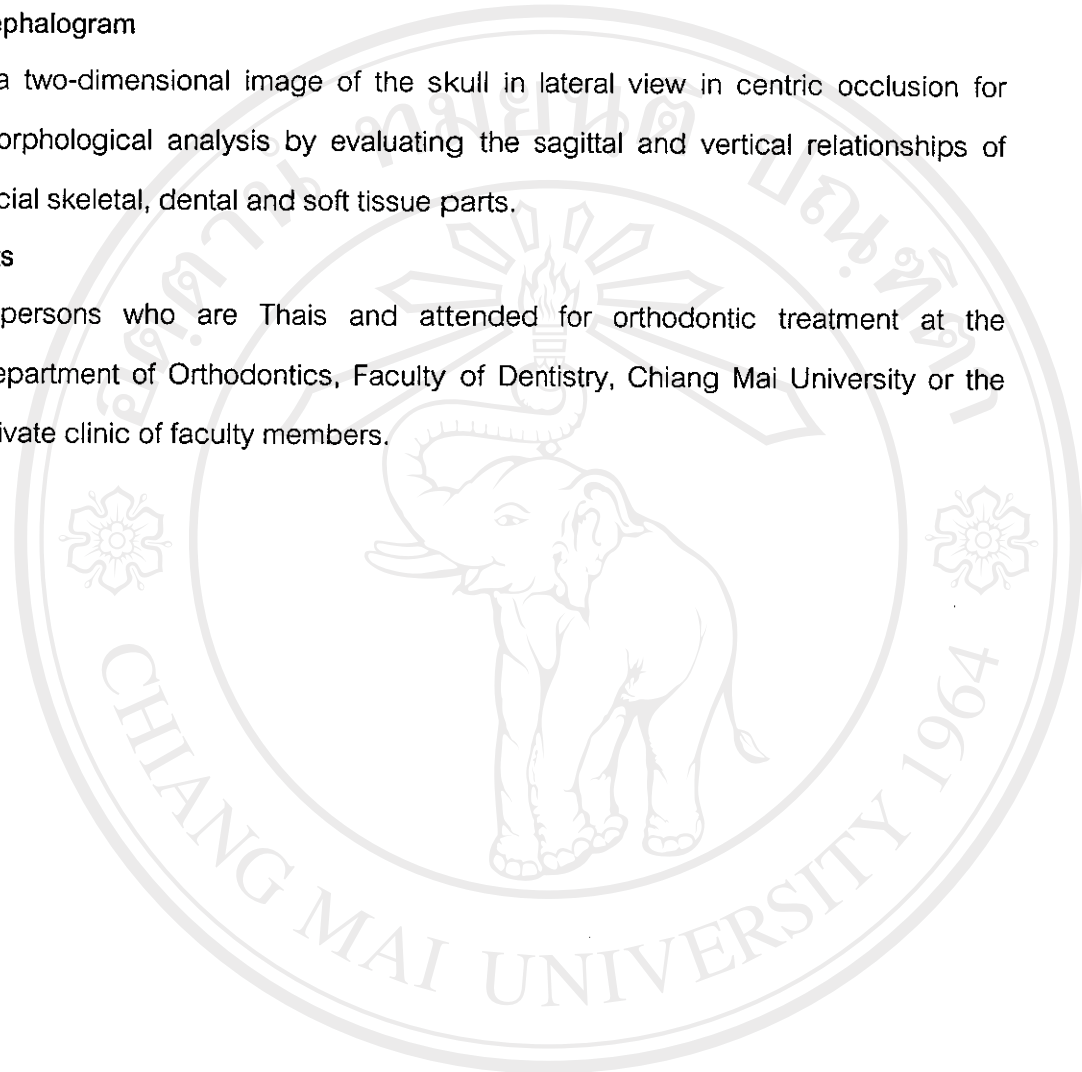
Craniofacial morphology

: refer to the morphology of cranium and facial structures that consist of the skeletal, the dental and the facial soft tissue components.

Lateral cephalogram

: a two-dimensional image of the skull in lateral view in centric occlusion for morphological analysis by evaluating the sagittal and vertical relationships of facial skeletal, dental and soft tissue parts.

Thai adults

: persons who are Thais and attended for orthodontic treatment at the Department of Orthodontics, Faculty of Dentistry, Chiang Mai University or the private clinic of faculty members.